IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

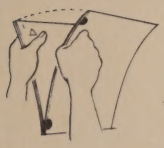
This PHOTOFACT Folder Set is

WIRE-SEALED FOR YOUR PROTECTION

to guarantee completeness of contents

DO NOT ACCEPT IF SEAL HAS BEEN BROKEN

TO OPEN ***JUST DO THIS:***

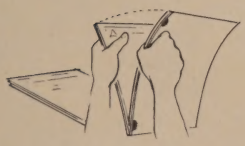


1

Take hold of the Set with both hands. Place your thumbs directly under the top wire-seal; then, divide the contents equally by putting your thumbs midway through the thickness of the Set. Now, pull the two sections apart at the top, firmly.

2

Repeat this process, pulling close to the wire-seal at the bottom, so that the set is now divided into two equal parts.



3

Continue this "pulling-apart" process with the section in which the wire-seals remain, dividing it in half.

4

Finally, remove the wire-seals left in the last section; this can easily be done with your fingernail or any sharp instrument.

Your "Safety-Sealed" PHOTOFACT Set is now ready for profit-making use . . .

IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

The PHOTOFACT® Servicer

SET 522 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ MARCH 1961

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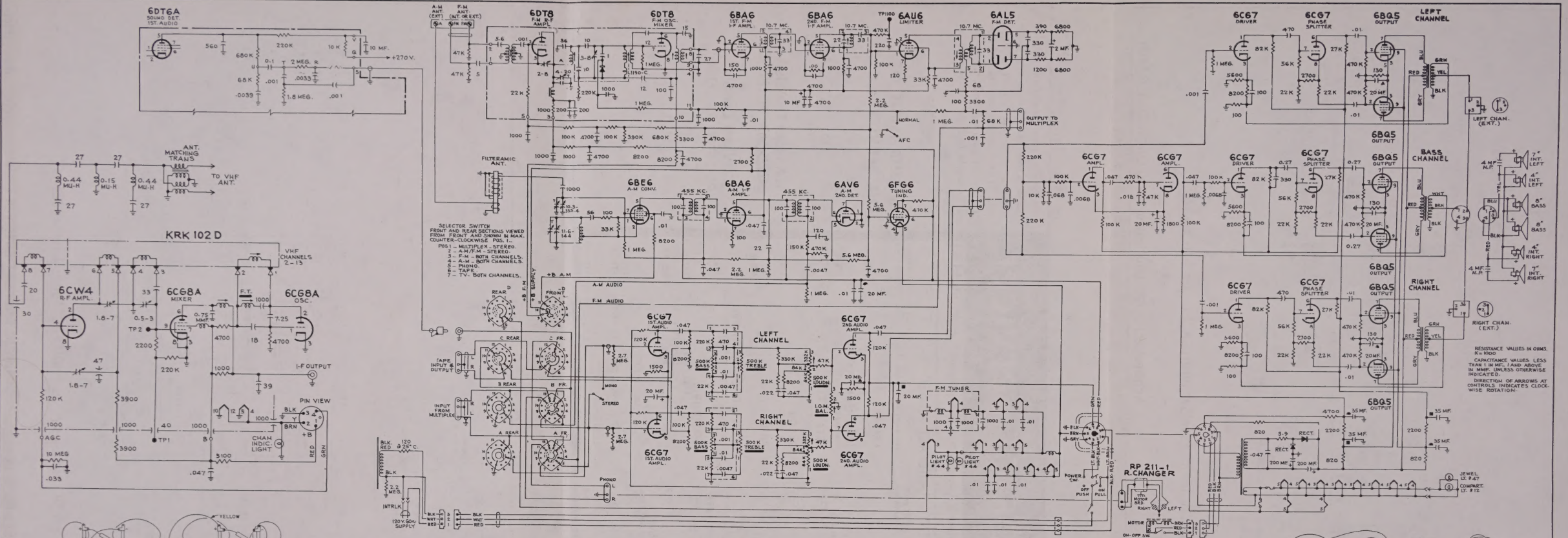
This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

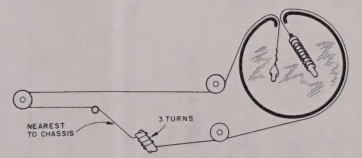
IN THIS ISSUE OF THE SERVICER:

RCA Victor Chassis
342125-503, 342126-502

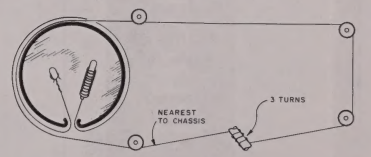
RCA Victor Chassis
RC-1192B, RS-171K



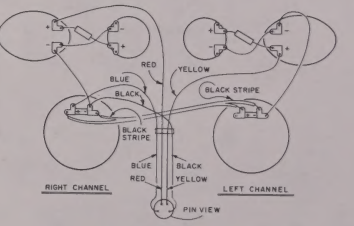
231-DV-125 & 6 Speaker Wiring Diagram



AM Dial Cord Stringing



FM Dial Cord Stringing

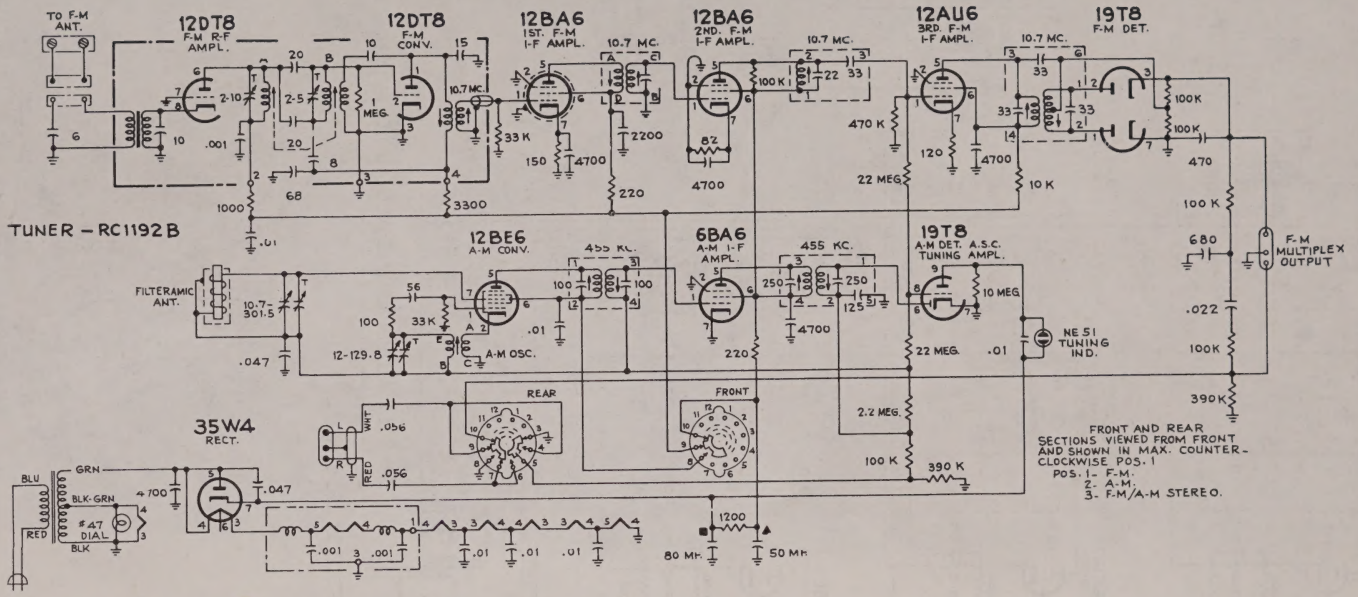


231-DV-146 Speaker Wiring Diagram

RCA VICTOR CHASSIS 342125-503, 342126-502

For TV Information See PHOTOFACT Folder 1 In Set 522

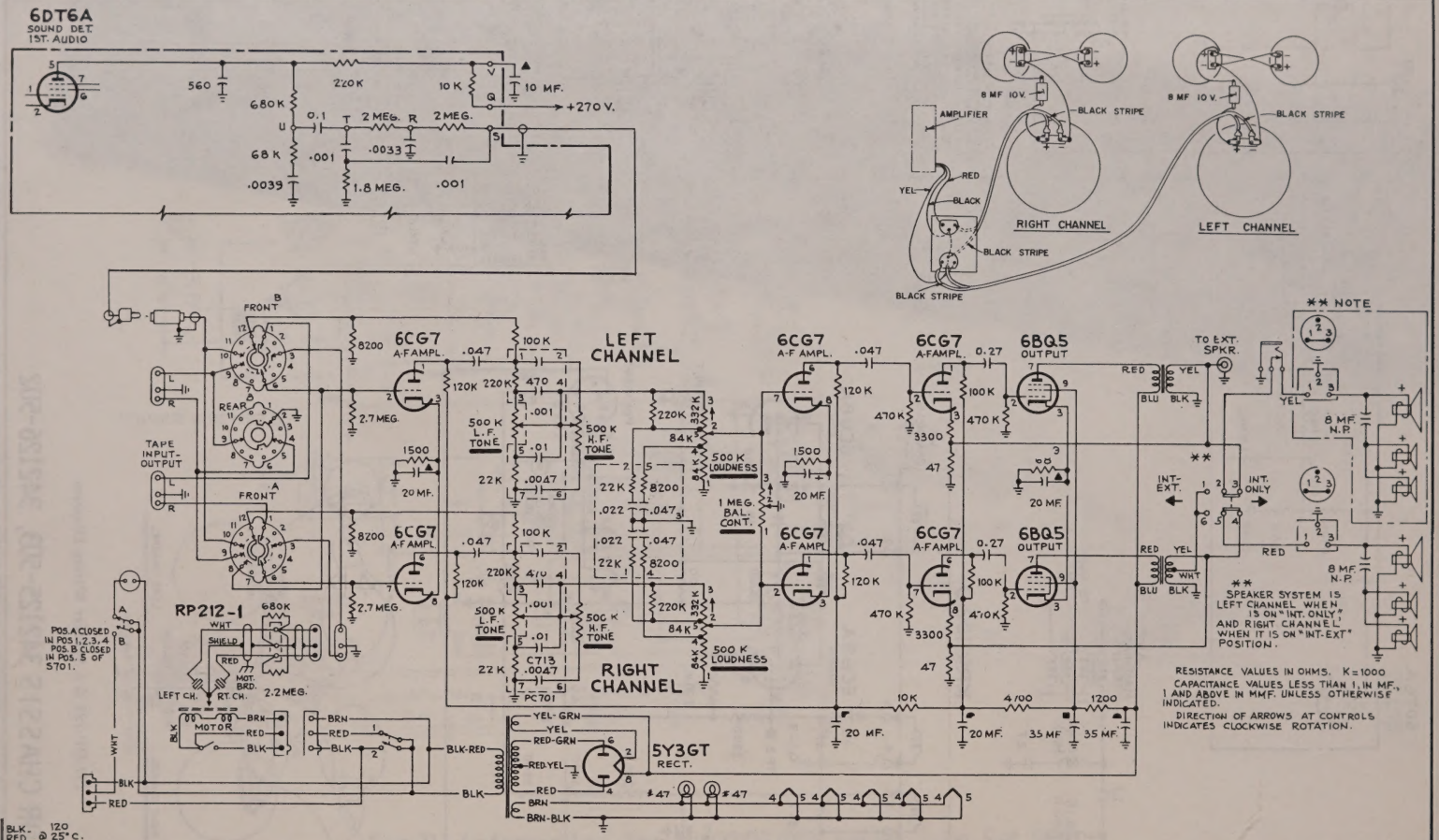
Schematic Diagram Courtesy of Radio Corporation of America



For TV Information See PHOTOFACT Folder 1 In Set 522

RCA VICTOR CHASSIS RC-1192B

Schematic Diagram Courtesy of Radio Corporation of America



For TV Information See PHOTOFACT Folder 1 In Set 522

RCA VICTOR CHASSIS RS-171K

Schematic Diagram Courtesy of Radio Corporation of America

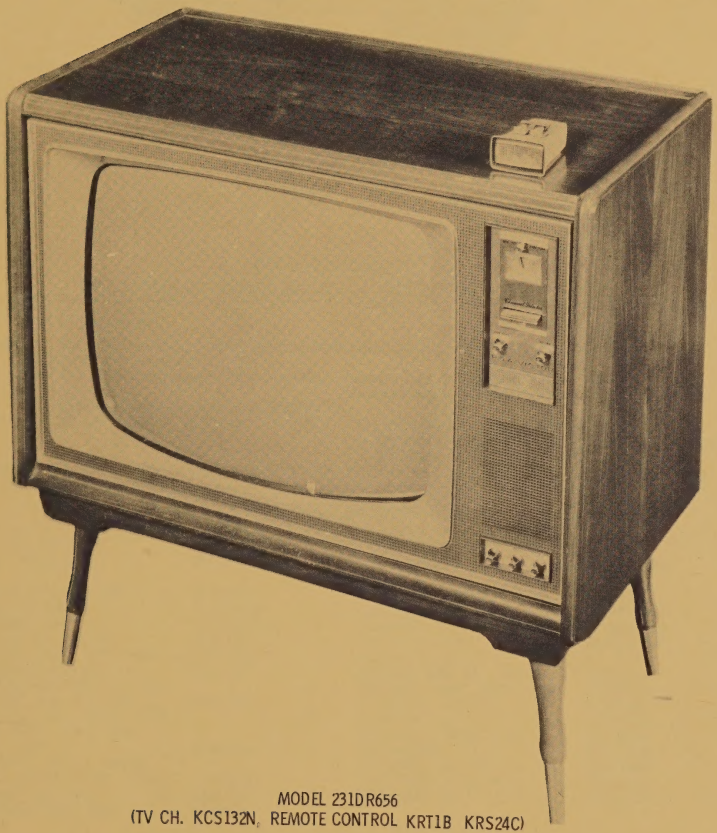
PHOTOFACT® Folder with CIRCUITRACE®

RCA VICTOR CHASSIS KCS132AC, AD, D,
E, F, H, K, L, M, N, R, T, W, ZC, ZD, ZJ

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



MODEL 231DR656
(TV CH. KCS132N, REMOTE CONTROL KRT1B KRS24C)

RCA VICTOR CHASSIS KCS132AC, AD, D,
E, F, H, K, L, M, N, R, T, W, ZC, ZD, ZJ

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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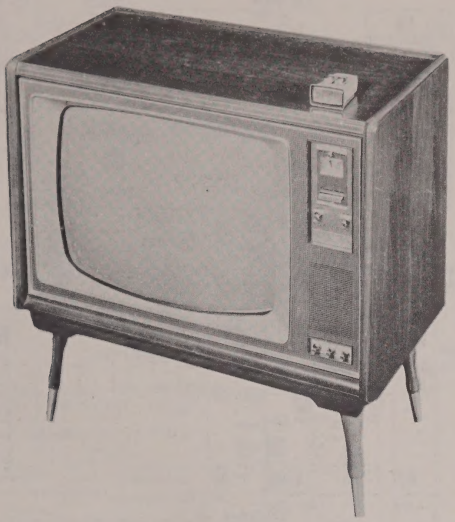
SET 522 FOLDER 1

PHOTOFACT® Folder with CIRCUITRACE®

RCA VICTOR CHASSIS KCS132AC, AD, D, E, F, H, K, L, M, N, R, T, W, ZC, ZD, ZJ

RCA VICTOR CHASSIS KCS132AC, AD, D, E, F, H, K, L, M, N, R, T, W, ZC, ZD, ZJ



MODEL 231DR656
(TV CH. KCS132N, REMOTE CONTROL CH. KRT1B, KRS24C)

TRADE NAME	RCA VICTOR
MANUFACTURER	Radio Corporation of America, RCA Television Div., Camden 8, N. J.
TYPE SET	Television Receiver
TUBES	TV: VHF - Eighteen, UHF - Nineteen Remote Control Receiver CTP9B - Four Remote Control Receiver KRS24C - Four
TRANSISTOR	Remote Control Transmitter CRK3E - One
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING VHF TV w/Remote Control KRS24C & KRT1B: 240 Watts, 2.4 Amp. @ 117 Volts AC (While Tuning) 230 Watts, 2 Amp. @ 117 Volts AC (Not Tuning)
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SEE PAGE 3 FOR SERVICING IN THE FIELD.

MODELS	TV CHASSIS
231D716, 719, 730, 734	KCS132AC
231DE742, 746	KCS132AE
231D716U, 719U	KCS132AD
231B612, 615, 616, 617	KCS132D
231B612U, 615U, 616U, 617U	KCS132E
231B612SU, 231B617SU	KCS132F
231D635, 636, 637, 645, 646, 647, 655, 656, 657, 659	KCS132K
231D635U, 636U, 637U, 645U, 646U, 647U, 655U, 656U, 657U, 659U	KCS132L
231D635SU, 636SU, 637SU, 655SU, 656SU, 657SU, 659SU	KCS132M
231D694, 695, 696	KCS132R
231D694U, 695U, 696U	KCS132T
231D695SU, 696SU	KCS132W
231DE722	KCS132ZAB
231DE675, 676, 677	KCS132ZAD
231DE675U, 676U, 677U	KCS132ZAE
231D66C4, 66N4, 231D665, 666, 667, 669	KCS132ZC
231D665U, 666U, 667U, 669U	KCS132ZD
231D66C4U, 66N4U	KCS132ZE
231BE625, 626, 627	KCS132ZH
231BE625U, 626U, 627U	KCS132ZJ
231BE625SU	KCS132ZK
231DE665, 666, 667	KCS132ZN
231DE665U, 666U, 667U	KCS132ZP
231DE755, 756	KCS132ZU

MODELS	TV CHASSIS	REMOTE CONTROL CHASSIS
231BR615, 616, 617	KCS132H	KRT1B & KRS24C
231DR655, 656, 657	KCS132N	KRT1B & KRS24C
231DR695, 696	KCS132ZA	KRT1B & KRS24C
231BER625, 626, 627	KCS132ZL	KRT1B & KRS24C
231DR716, 719	KCS132AA	CTP9B & CRK3E
231DR665, 666	KCS132ZF	CTP9B & CRK3E
231HR776, 788, 789, 797, 799	KCS132ZM	CTP9B & CRK3E

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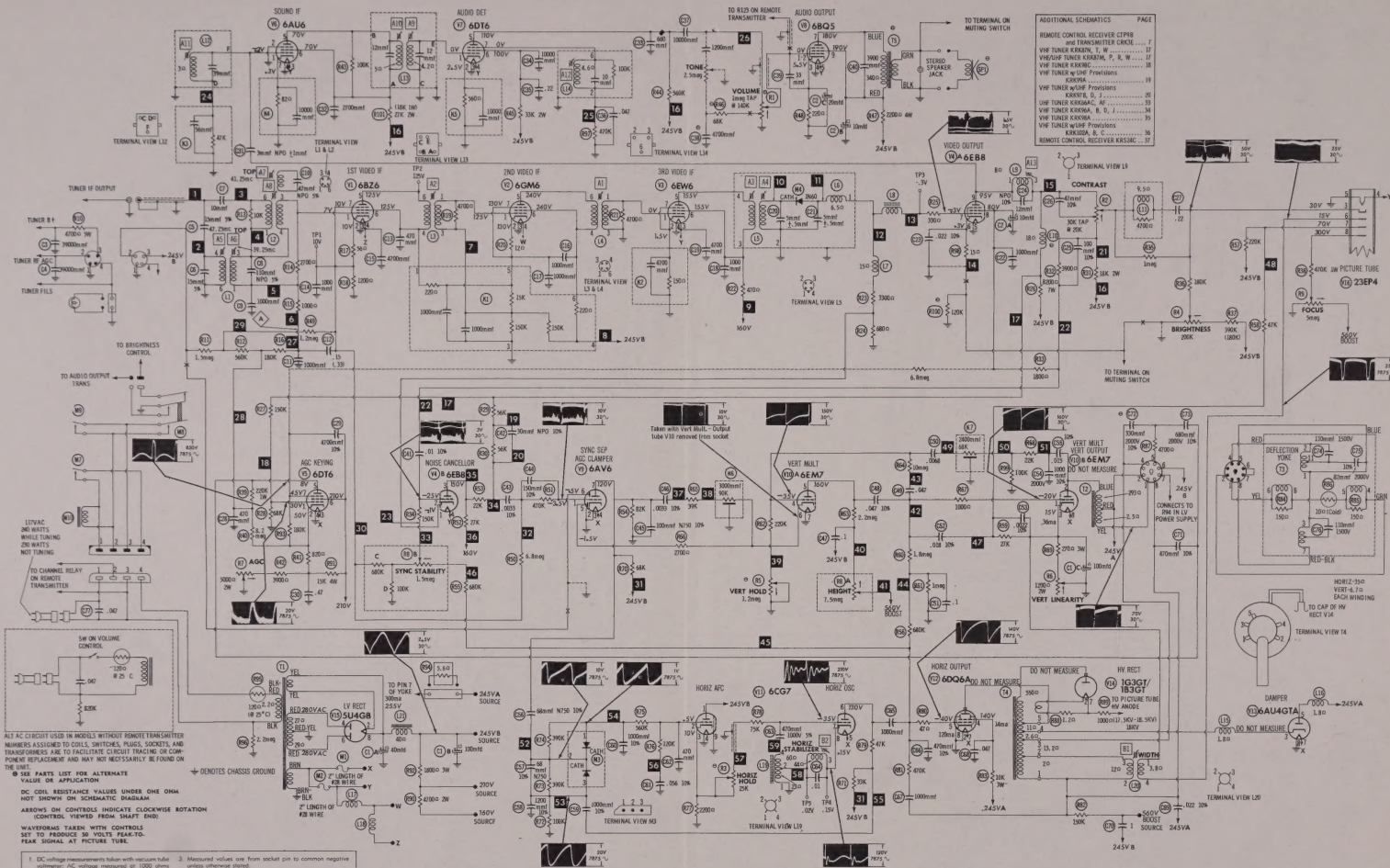
KA478

SET 522 FOLDER 1


ADDITIONAL SCHEMATICS PAGE
REMOTE CONTROL RECEIVER CTPRB and TRANSMITTER CRK3E 1
VHF TUNER KRK8XN, T, W 17
VHF/UHF TUNER KRK8YM, P, R, W 17
VHF TUNER KRK8XC 18
VHF TUNER w/UHF Provisions KRK9YA 19
VHF TUNER w/UHF Provisions KRK10A, B, D, J 20
UHF TUNER KRK66AC, AF 33
VHF TUNER KRK9BA, B, D, J 34
VHF TUNER KRK9BA 35
VHF TUNER w/UHF Provisions KRK10DA, B, C 36
REMOTE CONTROL RECEIVER KRS4C 37
SOUND IF
AUDIO DET
AUDIO OUTPUT
TO TERMINAL ON MUTING SWITCH
TO R125 ON REMOTE TRANSMITTER
STEREO SPEAKER JACK
TERMINAL VIEW L12
TERMINAL VIEW L2
TERMINAL VIEW L13
TERMINAL VIEW L14
TERMINAL VIEW L15
VIDEO OUTPUT
TERMINAL VIEW L9
TUNER IF OUTPUT
TUNER B+
TUNER RF AGC
TUNER FILS
1ST VIDEO IF
2ND VIDEO IF
3RD VIDEO IF
TERMINAL VIEW L3 & L4
TERMINAL VIEW L5
CONTRAST
TO BRIGHTNESS CONTROL
TO AUDIO OUTPUT TRANS
BRIGHTNESS
FOCUS
TO TERMINAL ON MUTING SWITCH
AGC KEYING
NOISE CANCELLOR
SYNC SEP AGC CLAMPER
VERT MULT
VERT OUTPUT
DO NOT MEASURE
CONNECTS TO PIN 1 IN LV POWER SUPPLY
DEFLECTION YOKE
RED-BLK
LITVAC 240 WATTS WHILE TUNING 250 WATTS NOT TUNING
TO CHANNEL RELAY ON REMOTE TRANSMITTER
SYNC STABILITY
VERT HOLD
HEIGHT
VERT LINEARITY
HORIZ-350 VERT-6.7 Ω EACH WINDING
TO CAP OF HV RECT V14
TERMINAL VIEW T4
SW ON VOLUME CONTROL
LV RECT
TO PIN 7 OF YOKE
HORIZ AFC
HORIZ OSC
HORIZ OUTPUT
HV RECT
TO PICTURE TUBE HV ANODE
DAMPER
WIDTH
TERMINAL VIEW L20
TERMINAL VIEW M3
TERMINAL VIEW L19
245VA SOURCE
245VB SOURCE
210V SOURCE
150V SOURCE
560V BOOST SOURCE 245VA
DENOTES CHASSIS GROUND
ALT AC CIRCUIT USED IN MODELS WITHOUT REMOTE TRANSMITTER
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE
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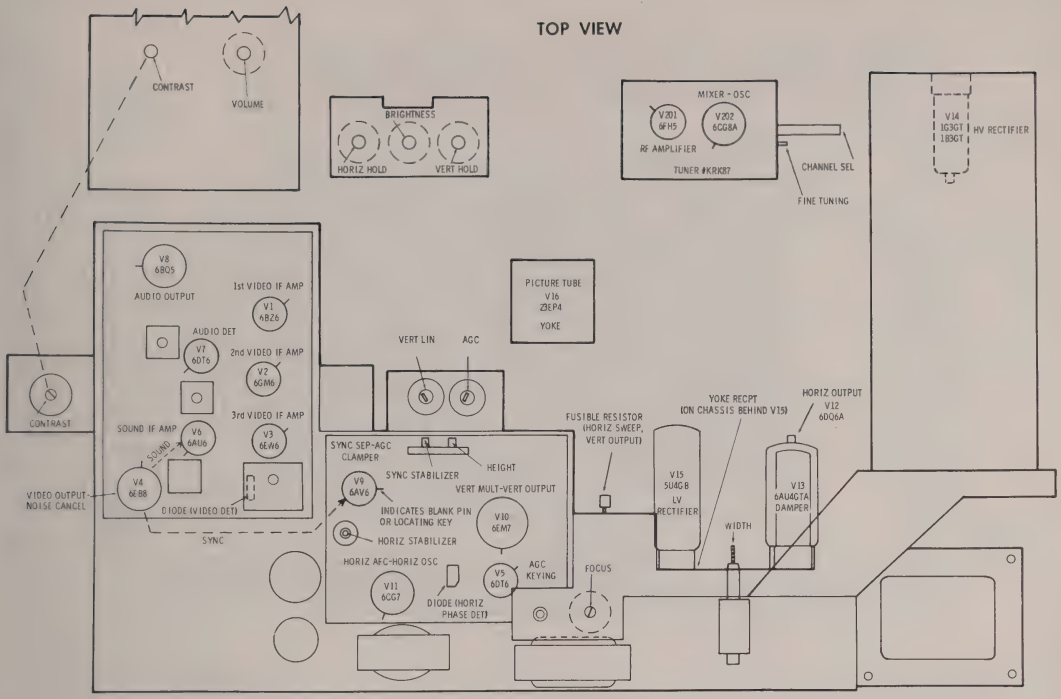
RCA VICTOR CHASSIS KCS132AC, AD, D,
E, F, H, K, L, M. N, R, T, W, ZC, ZD, ZJ

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse (Fil.), V15

SWEEP FAILURE
No raster, has sound V11, V12, V13, V14, V16
No vertical deflection V10
Poor vert. linearity or foldover V10
Poor horiz. linearity or foldover V11, V12, V13
Narrow picture V11, V12, V13, V15
Vert. off freq. V10
Horiz. off freq. Diodes (Horiz. Phase Det.), V11

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V16
Has pic, no sound V6, V7, V8
Overloaded picture V5

SYNC FAILURE
No vert. sync V9
No horiz. sync V9
No vert. or horiz. sync V9

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

The safety glass is an integral part of the picture tube.

FUSE

Two fuse wires are used for filament protection. (For location, See M1 and M2 in Photo, Page 40.

FUSE DEVICE

A fusible resistor is used for horizontal sweep and vertical output protection.

TUNER OSCILLATOR ADJUSTMENT

To touch up VHF Oscillator, it is necessary to remove Channel Selector cover.

AGC

The AGC may be varied by means of an AGC Control. (For location, see "Tube Placement Chart".)

FOCUS

The focus may be varied by means of a Focus Control. (For location, see "Tube Placement Chart".)

SYNC STABILITY

Sync stability may be varied by means of a Sync Stabilizing Control. (For location, see "Tube Placement Chart".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Stabilizing Slug. (For location, see "Tube Placement Chart".)

WIDTH

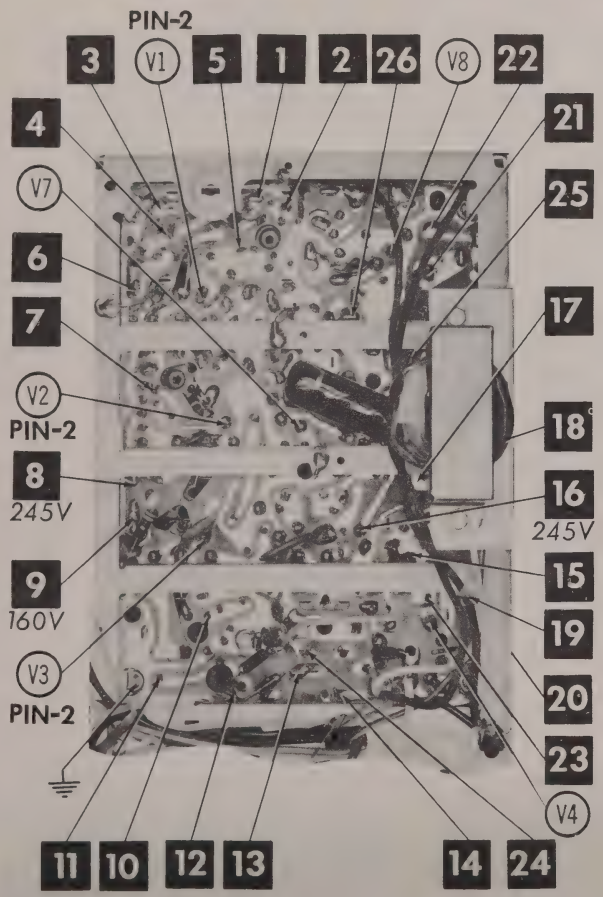
The width may be varied by a Width Coil. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

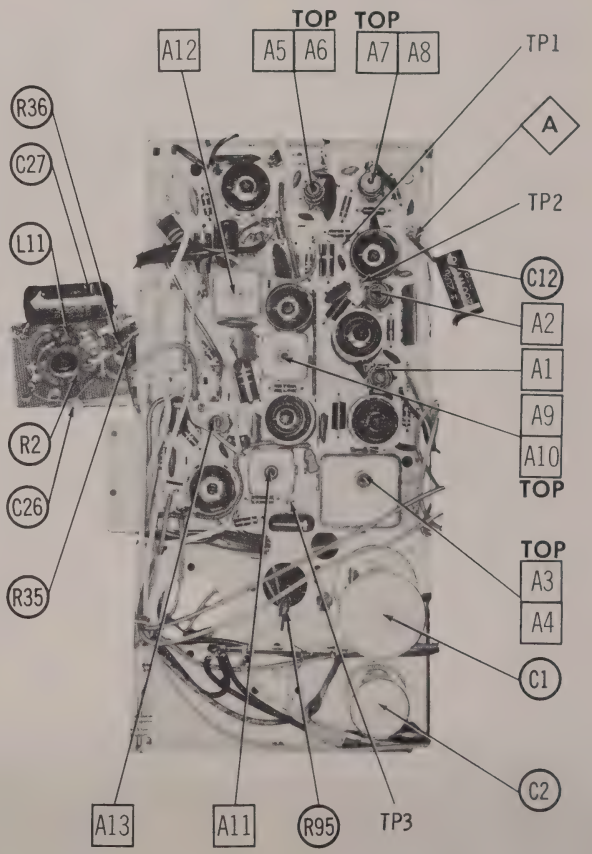
A Howard W. Sams CIRCUITRACE® Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

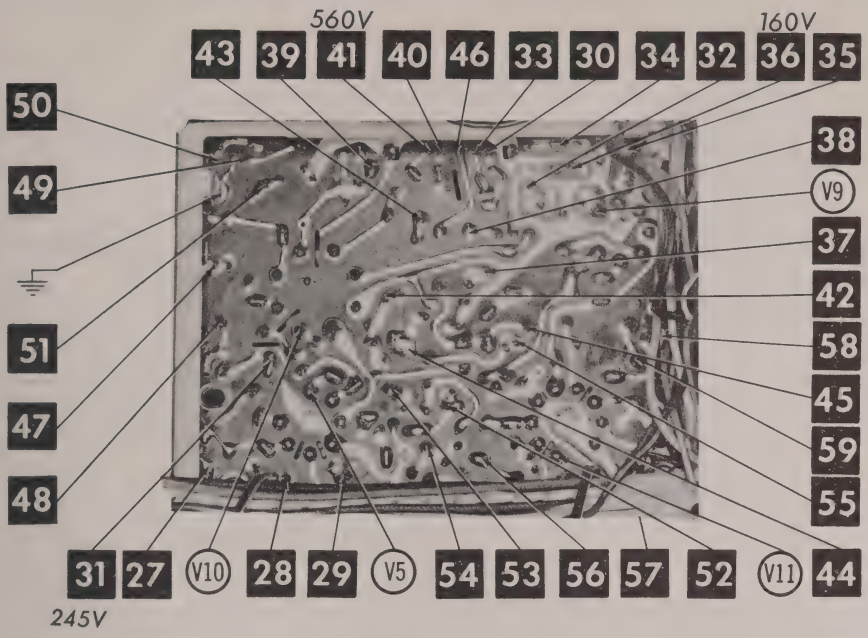


VIDEO, SOUND, PRINTED BOARD

TP1 10V 1st IF CATH. CIRCUIT
TP2 125V 1st IF PLATE
TP3 -.3V VIDEO OUTPUT GRID



VIDEO, SOUND PRINTED BOARD - TOP VIEW

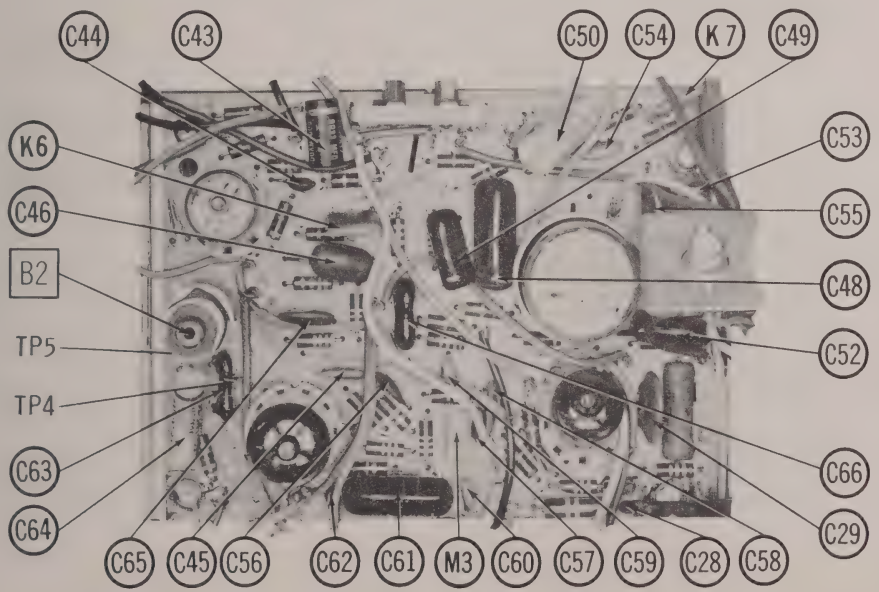


A Howard W. Sams CIRCUITRACE® Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

HORIZ. - VERT. OSC., AGC, SYNC PRINTED BOARD

TP4 .15V HORIZ. OSC. CATH.
TP5 .02V HORIZ. OSC. COIL TAP



HORIZ. - VERT. OSC., AGC, SYNC PRINTED BOARD
CAPACITOR, MISC., TEST POINT IDENT.

TV ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8606L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect a clip lead from point (A) to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough generator output to provide a usable indication.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Place a thin insulated metal strip between the Mixer-Osc. tube and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	Not Used	45.5MC (Unmod.)	Any non-interfering channel	Use VTVM DC probe to TP-3. Common to chassis.	A1	Adjust for maximum deflection.
2.	"	"	43.0MC	"	"	A2	"
3.	"	45MC (10MC Swp.)	41.25MC 45.75MC	"	Vert. Amp. of scope to TP-3. Low side to chassis.	A3, A4	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
4.	"	Not Used	47.25MC	"	Use VTVM DC probe to TP-3. Common to chassis.	A5	Adjust for MINIMUM deflection.
5.	Place a thin insulated metal strip between the Mixer-Osc. tube and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	"	39.25MC	"	"	A6	"
6.	"	"	41.25MC	"	"	A7	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the negative lead of a 3.5 volt bias supply to point (T). Positive to chassis.
Connect negative lead of a variable bias supply to point (A). Positive side to chassis. Adjust for zero volts bias.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Place a thin insulated metal strip between the Mixer-Osc. tube and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	45MC (10MC Swp.)	42.5MC 45.75MC	Any non-interfering channel	Vert. Amp. thru .001mfd to TP-2. Low side to chassis. Connect a 180Ω resistor across scope leads.	Mixer Plate Coil and A8	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. Repeat step 4 above.
8.	"	"	42.5MC 45.0MC 45.75MC	"	Vert. Amp. to TP-3. Low side to chassis. Remove resistor from across scope leads.		Change Bias at point (A) to -6 volts. Retouch A1 thru A4 for response similar to Fig. 3.
9.	High side thru pad (Fig. 4) to Mixer Grid. Low side to chassis.	Not Used	45.75 MC	"	Use VTVM DC probe to TP-3. Common to chassis.		Adjust generator output for exactly 1.5 volts on VTVM.
10.	High side direct to Mixer Grid. Low side to chassis.	"	41.25MC (Unmod.)	"	"		Retouch A2, A3 and A4 for 1.2V to 1.5V on VTVM. Check for response curve in step 8.
11.	Across Antenna Terminals thru matching pad (Fig. 5).	Each VHF Channel in turn	42.5MC 45.0MC 45.75MC	"	Vert. Amp. to TP-3. Low side to chassis.		Retouch A1, A3 and A4 slightly for correct overall tilt.

SOUND IF ALIGNMENT

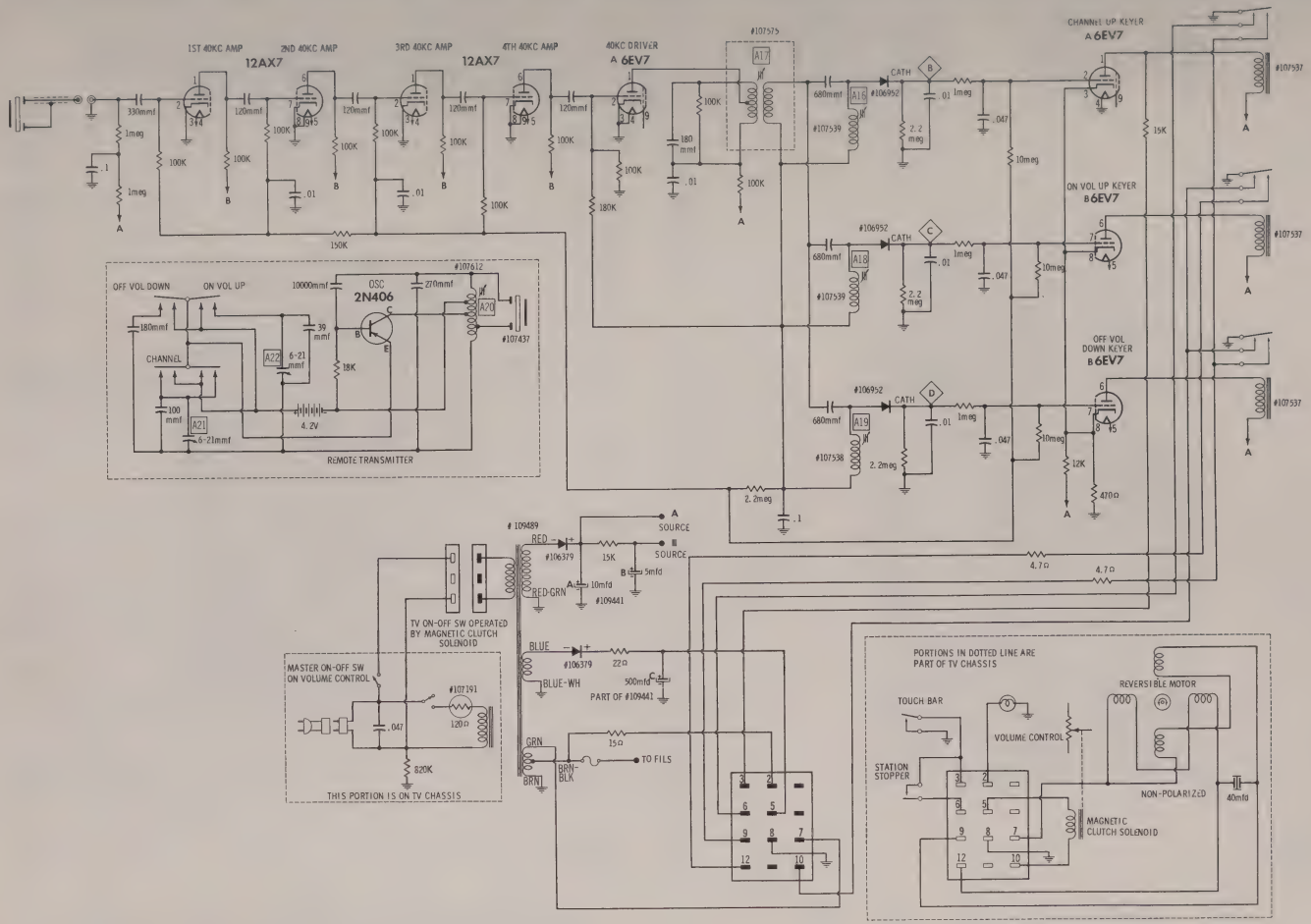
Connect the negative lead of a 10 volt bias supply to point (A). Positive to chassis.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
12.	High side thru .001mfd to TP-3. Low side to chassis.	4.5MC (Unmod.)	Any non-interfering channel	DC probe thru diode detector (Fig. 6) to pin 7 (grid 3) of Audio Detector. Common to chassis.	A9, A10, A11	Adjust for maximum negative DC on meter. Attenuate generator for reading between 1 and 1.5 volts on VTVM when finally peaked. Peak A9 and A10 with maximum core separation. Adjust A11 for maximum deflection.

13. Remove the VTVM and Diode Detector. Connect scope across speaker voice coil. Turn off signal generator and tune in the strongest signal in the area, adjusting volume control for normal volume.
Preset Coil Slug (A12) flush with top of coil form. While observing scope and listening to sound output, adjust A12 clockwise to a peak.
Continue turning clockwise to a second louder peak and adjust for maximum on this second peak.

CONT'D ON PAGE 39

SEE ALIGNMENT IDENTIFICATION PHOTO ON PAGE 4



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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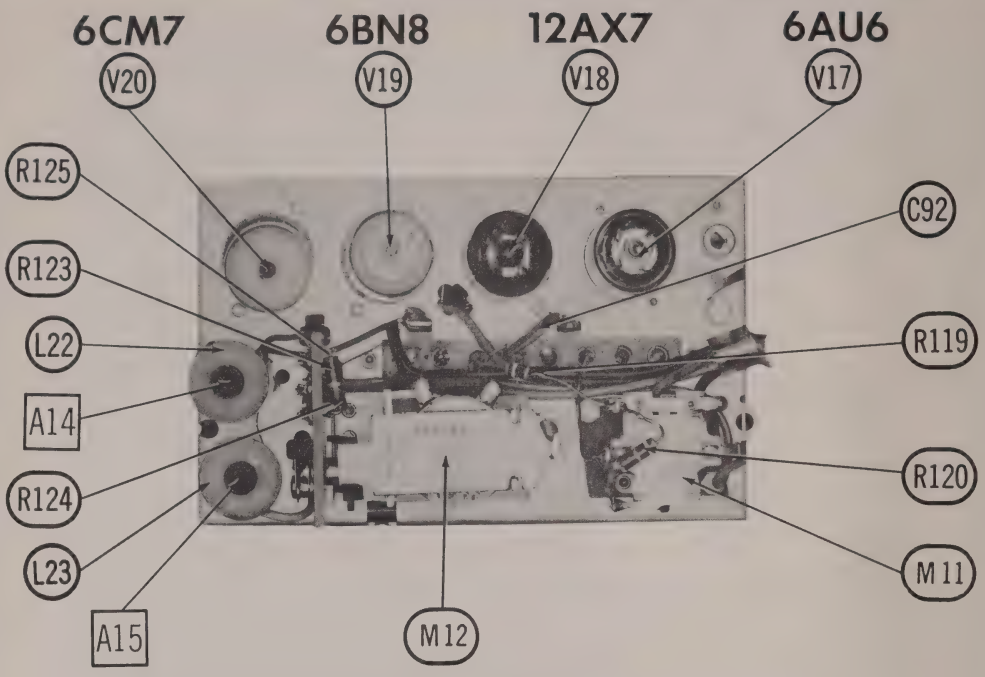
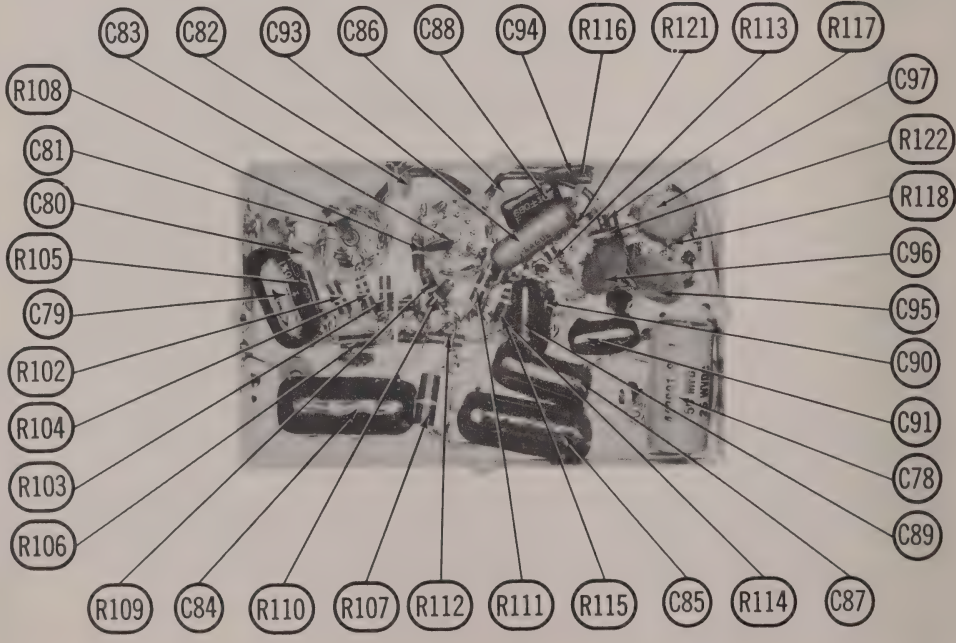
REMOTE CONTROL RECEIVER CTP9B & TRANSMITTER CRK3E

RCA VICTOR CHASSIS KCS132AC, AD, D,
E, F, H, K, L, M, N, R, T, W, ZC, ZD, ZJ



REMOTE CONTROL RECEIVER KRS24C - TOP VIEW



REMOTE CONTROL RECEIVER KRS24C - BOTTOM VIEW

TV PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	1st Video IF Amp.	6BZ6	V9	Sync Sep. - AGC Clamper	6AV6
V2	2nd Video IF Amp.	6GM6	V10	Vert. Mult. - Vert. Output	6EM7
V3	3rd Video IF Amp.	6EW6	V11	Horiz. AFC - Horiz. Osc.	6CG7
V4	Video Output - Noise Cancel.	6EB8	V12	Horiz. Output	6DQ6A
V5	AGC Keying	6DT6	V13	Damper	6AU4GTA
V6	Sound IF Amp.	6AU6	V14	HV Rectifier	1G3GT/1B3GT
V7	Audio Det.	6DT6	V15	LV Rectifier	5U4GB
V8	Audio Output	6BQ5			

PICTURE TUBE

ITEM No.	REPLACEMENT DATA					NOTES
	RCA Victor PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
V16	23EP4		23EP4 ①		23EP4 ②	① Aluminized ② Silver Screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	▲40	400	109305	AFH3-122-10	C0890	FP333.2	TMT-3480	TVL-3683	
B	■100	400							
C	▲100	50							
C2A	▲10	400	78929	AFH3-125	C0910	FP345.2	TMT-3595	TVL-3731	
B	■10	350							
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REMARKS	REPLACEMENT DATA						
					AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	39000					DD-403	BYB6S4	6DP-3-393	GP140	6PS-S39	
C4	39000					DD-403	BYB6S4	6DP-3-393	GP140	6PS-S39	
C5	15		5%			DTZ-15	C10Q15C		CNO-415	10TCC-Q15	
C6	15		5%			DTZ-15	C10Q15C		CNO-415	10TCC-Q15	
C7	10				DI-10	DD-100	L10QL	CCD-100	GP410	10TS-Q10	
C8	110	NPO	5%			TCZ-110	22R5T11	CM-19B-11LJ	CNO-312	10TCC-T11	
C9	1000				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C10	47	NPO	5%			DTZ-47	22R5T11	CCTO-470	CNO-447	10TCC-P47	
C11	1000				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C12	.15	200V		†(.33)	P288N-15		CUB2P15	2DP-3-154	GEM-2015	2TM-P15	
C13	470				BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47	
C14	1000				BPD-001	DD-102	BYA10D1	CCD-102	B-110	5HK-D10	
C15	4700				BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47	
C16	1000				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C17	1000				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C18	1000				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C19	4700				BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47	
C20	5		±.5mmf		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50	
C21	5		±.5mmf		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50	
C22	1000				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C23	.022	200V	10%		V84C2S22-10%		PM4S22	4DP-2-223	GEM-1612	2TM-S22	
C24	12	NPO	10%			TCZ-12	C10Q12C	CCTO-120	CNO-412	10TCC-Q12	
C25	100		10%		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10	
C26	47		10%		DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47	
C27	.22	600V			P688N-22		CUB6P22	6DP-5-224	GEM-6022	6TM-P22	
C28	470				BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47	
C29	4700		10%		DI-4700		BYA10D47M	CCD-472	JL-247	10TS-D47	
C30	.47	200V			P288N-47		CUB2P47	2DP-5-474	GEM-2047	2TM-P47	
C31	3	NPO	±1mmf		NPO-SI 3.0	TCZ-3R3	C10V3C	CCTO-3R3	CNO-533	10TCC-V33	
C32	2700				DI-2700	DD-272	L10D27	CCD-272	B-227	10TS-D27	
C33	680				BPD-00068	DD-681	BYA10T68	CCD-681	B-368	10TS-T68	
C34	10000				BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C35	.22	400V			P488N-22		CUB4P22	4DP-5-224	GEM-4022	4TM-P22	
C36	.047	200V			P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47	
C37	10000				BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C38	4700 ▲				BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47	
C39	33				DI-33	DD-330	L10Q33	CCD-330	GP433	10TS-Q33	
C40	3900				DI-4000	DD-392	L10D39	CCD-392	GP239	10TS-D39	
C41	.01	400V	10%		V84C4S1-10%		PM4S1	4DP-1-103	GEM-1611	4TM-S10	
C42	39	NPO	10%		NPO-DI 39	DTZ-39	C10Q39C	CCTO-390	CNO-439	10TCC-Q39	
C43	.0033	600V	10%		V84C6D33-10%		PM6D33	6DP-1-332	GEM-16233	6TM-D33	
C44	150		10%		DI-150	DD-151	L10T15	CCD-151	GP315	10TS-T15	
C45	100	N750	10%		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10	
C46	.0033	600V	10%		V84C6D33-10%		PM6D33	6DP-1-332	GEM-16233	6TM-D33	
C47	.1	400V			P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10	
C48	.047	600V	10%		V84C6S47-10%		PM6S47	6DP-3-473	GEM-1615	6TM-S47	
C49	.047	200V			P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47	
C50	.0068	400V			P488N-0068	D6-682	CUB6D68	6DP-1-682	GEM-6268	6TM-D68	
C51	.1	200V			P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10	
C52	.018	400V	10%		P684CM-018		PM4S2	4DP-2-203	GEM-1612	5BF-S18	
C53	.0022	600V	10%		V84C6D22-10%		PM6D22	6DP-1-222	GEM-16222	6TM-D22	
C54	1000	2000V	10%	#104222							
C55	.015	600V	10%				PM6S15	6DP-2-153		6TM-S15	
C56	68	N750	10%		N750-DI 68	DTN-68	C10Q68U	CCTN-680	CN7-468	10TCU-Q68	
C57	68	N750	10%		N750-DI 68	DTN-68	C10Q68U	CCTN-680	CN7-468	10TCU-Q68	
C58	1200		10%		DI-1200	DD-122	5R5D12	CCD-122	GP212	10TS-D12	
C59	1000		10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10	

FIXED CAPACITORS (cont)

ITEM No.	RATING		REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C80	1000	10%		DI-1000	DD-102	SR5DI	CCD-102	GP210	10TS-D10
C81	.056	200V 10%		P684CM-056		DPM3S356	6DP-3-563		6P3-S56
C82	470			BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C83	470	1000V 5%	#106872				VCM-30-471J		
C84	.01	400V		P488N-01	DS-103	CU124S	4DP-1-103	GFM-411	47TM-S10
C85	1000	10%		DI-1000	DD-102	SR5DI	CCD-102	GP210	10TS-D10
C86	470	10%		1469-00047		SR5T47	CM-19B-471K	MC1244	MS-347
C87	1000			BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C88	.047	400V		P488N-047	DS-503	CU94S47	4DP-3-473	GEM-4147	47M-947
C89	.022	600V 10%		V84C6322-10%		FM8S22	6DP-3-223	GEM-4162	6TM-S22
C90	.1	400V		P488N-1	DF-104	CU84P1	4DP-3-104	GEM-401	4TM-P10
C91	470			DI-470	DD-471	SR5T47	CCD-471	GP347	10TS-T47
C92	330	2000V 10%	Note 1				VCM-20-331K		
C93	680	2000V 10%	#106603				VCM-20-681K		
C94	110	1500V		HVD-15-120	DD30-120	HVB20T12	3CCD-121	3HV-312	30GA-T12
C95	82	2000V 10%					VCM-20-820K	2DY-482	
C96	120	1500V		HVD-15-120	DD30-120	HVB20T12	3CCD-121	3HV-312	30GA-T12
C97	.047	600V		P688N-047	DD-503	CU86S47	6DP-3-473	GEM-5147	6TM-947

† Alternate Value. ▲ Not used in some versions. # RCA Victor Part Number.
Note 1. Some versions may use 270mmf ⑤ 2000V (Pt. #109228).

CONTROLS

ITEM No.	RATING RESIST-ANCE	RATING WATTS	REPLACEMENT DATA RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	109306	ABT-72	A47F-1meg	B13-137X	U7-440	Volume Note 1
B	Shaft							
R2	30K	½	109301		AK-33	RS-3/16	SK9	DS-37 Contrast
	30K Tap							
R3	25K	½	107827					Horiz. Hold Note 2
R4A	200K	½	107331	AB-46	A47-200K-S	B1U-129	U43	Brightness
B	Shaft			AK-33	RS-3/16	SK9	DS-37	
R5A	1 Meg	½	109397	AB-742	A47-1 Meg-S	B1U-138	U155	Vert. Hold Note 3
B	Shaft			AK-33	RS-3/16	SK9	DS-37	
R6	1200Ω	2(2W)	109308				FP1-1K	Vert. Linearity
R7	5000Ω	2(2W)	109309				FP1-5K	AGC
R8A	7.5meg	½	109324					Height
B	1.5meg	½						Sync Stability
C	680K							
D	100K							
R9	5meg	½	109300	TT-87	B47-5meg-S	HLC5	PTA56L	Focus

Note 1: Chassis KCS132K, L, M, R, T, W, AC, AD, AE, ZD, ZE, ZC, ZH, ZJ, ZK, ZU, ZAD, ZAE, ZN, ZP use Part #107324.
Chassis KCS132D, E, F use Part #107388. Chassis KCS132AA, ZF, ZM use Part #107616.
Chassis KCS132H uses Part #10949. Chassis KCS132N, ZA, ZL use Part #109306.
Note 2: Chassis KCS132R, T, ZA, ZH, ZJ, ZK, ZL, ZN, ZP, AB, ZU use Part #109386.
Note 3: Chassis KCS132R, T, ZA, ZAB, ZH, ZU, ZJ, ZK, ZL, ZP, ZN use Part #109388.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R10	4700Ω 5W	PW5-4700Ω	5W SQ 4700Ω	#106074
R11	1.5meg			
R12	560K			
R13	10K			
R14	2700Ω			
R15	1000Ω			
R16	180K			
R17	56Ω			
R18	1200Ω			
R19	4700Ω			
R20	12Ω			
R21	4700Ω			
R22	470Ω			
R23	3300Ω			
R24	680Ω			
R25	330Ω			
R26	82000Ω 7W	PW10-82000Ω	10W SQ 8200Ω	#106975
R27	150K			
R28	68K			
R29	56K			
R30	56K			
R31	18K 2W			
R32	3900Ω			
R33	1800Ω			
R34	150K			
R35	1meg			
R36	180K			
R37	390K			(180K) *
R38	470K 1W			
R39	220K 1W			
R40	8.2meg			#107464
R41	820Ω			
R42	3900Ω			
R43	100K			
R44	560K			
R45	33K 2W			
R46	68K			Note 1
R47	2200Ω 4W	PW5-2200Ω	5W SQ 2200Ω	#103352
R48	220Ω			#104295
R49	1.2meg			#107191
R50	6.8meg			
R51	470K			
R53	27K			
R53	22K			
R54	82K			Note 1
R55	680K			(18K 1W) *

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R56	680K			
R57	220K			
R58	47K			
R59	27K			
R60	1.8meg			
R61	1meg			
R62	330K			
R63	2.2meg			
R64	10meg			
R65	39K			
R66	2700Ω			
R67	1000Ω			
R68	22K			
R69	2700Ω 3W	PW5-270Ω	3G-270Ω	#103384
R70	68K			
R71	33K			
R72	100K			
R73	390K			
R74	390K			
R75	560K			
R76	130K			
R77	2200Ω			
R78	75K			
R79	47K			
R80	470			
R81	470K			
R82	150K			
R83	10K 3W	PW5-10K	5W SQ 10K	
R84	150Ω			
R85	150Ω			
R86	10Ω (Cold)			#107464
R87	4700Ω			
R88	1.2Ω			
R89	1000Ω			
R90	4700Ω 2W			
R91	15K 4W	PW5-15K	5W SQ 15K	#106635
R92	1800Ω 3W	PW5-1800Ω	5W SQ 1800Ω	#107322
R93	180K			
R94	5.6Ω †			#104295
R95	120Ω ⑤ 25°C			#107191
R96	2.2meg			
R97	470K			
R98	150			
R99	100K			
R100	120K			Note 1
R101	27K 2W			(18K 1W) *

RCA Victor Part Number.
Note 1. Not used in some versions.

† Fusible Type
* Alternate Value.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION ?	RCA Victor PART No.	REPLACEMENT DATA
K1	1st and 2nd Video IF	1000mmf, 1000mmf, 220Ω, 220Ω, 15K, 150K, 180K	107277	Centralab RC-421
K2	3rd Video IF Cathode	4700mmf, 150Ω	109330	
K3	Sound Takeoff Filter	56mmf, 47K	104329	
K4	Sound IF Cathode	10000mmf, 82Ω	107278	
K5	Audio Detector Cathode	10000mmf, 560Ω	109319	
K6	Vert. Integrator	3000mmf, 90K	109326	
K7	Vert. Feedback	2400mmf, 68K	109325	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA RCA Victor PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1A	47.25MC Trap	109322					
B	39.35MC Trap						
L2A	1st Video IF	109323					
B	41.25MC Trap						
L3	2nd Video IF	109071					
L4	3rd Video IF	109158					
L5	4th Video IF	109321					
L6	Peaking (3Sih)	103819	TV-180	6178	RTC-8593	T301	
L7	Peaking (250uh)	101287	TV-185	6181	RTC-8598	T315	
L8	RF Choke (5.5uh)	109171	BC-565	4809	RTC-8519	T959	
L9	4.5MC Trap	104903					
L10	Peaking (750uh)	107199 †	TV-207	6158	RTC-8588	T328	
L11	Peaking (250uh)	109295 ①	TV-185 *	6181 *	RTC-8598 *	T315 *	① Wound on 4700Ω Res. * Parallel with 4700Ω Resistor
L12	1st Sound IF	104136					② Includes 10mmf Cap. and 120K Resistor
L13	2nd Sound IF	107301					† Part #109782 used in
L14	Quadrature	105795 ②					late production chassis
L15	RF Choke (8.2uh)	107365	BC-566	4611	RTC-8521	T960	
L16	RF Choke (8.2uh)	107365	BC-566	4611	RTC-8521	T960	
L17	Fil. Choke (luh)	73477	BC-561	4602	RTC-8515	T855	
L18	Fil. Choke (luh)	73477	BC-561	4602	RTC-8515	T855	

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA RCA Victor PART No.	Merit PART No.	Miller PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	Workman TV PART No.
L19A	Horiz. Osc.	109318							
B	Horiz. Stabilizer								
L20	Width Coil	107337							T130
	2.5MH - 18MH (Pri.)								
	.1MH - .2MH (Sec.)								

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Maximum)	DC RES.	INDUCTANCE @ CURRENT 1000 °C.)	REPLACEMENT DATA RCA Victor PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L21	.300A	40Ω	1.2 Hy.	77676		C-2343	26C44	C-26X	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA RCA Victor PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V	560VCT	5V	109297				R-122A	
	② 2A	③ .300A ④ DC	④ 3A						
	SEC. 3	SEC. 4	SEC. 5						
	6.3V								
	⑤ 10.5A								

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA RCA Victor PART No.	Merit PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	Vert. Output	109385					A-140X	
T3	Yoke (Horiz. 17.8MH) (120°) (Vert. 12.3MH)	107022A			DY-26A ①	Y-47 ①	Y-60-2	
T4	Horiz. Output	107698						

① Use original rear cover and centering device.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	SEC.	REPLACEMENT DATA RCA Victor PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	8500Ω	3-4Ω	100037 ①	A-3020	A-8349	26S48	S-16X	① Part #109304 used in Chassis KCS132D, E, F, H

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA RCA Victor PART No.	QUAM PART No.	NOTES
SP1	4" x 6"	PM	3-4Ω	107476 ①	46A1	① Used in Models 23ID655-6-7-U & 8U, 23IR655-6-7, 23ID665-6-7-9 & U, 23IR665-6, 23ID68C4 & U, 23ID66N6 & U, 23IR665, 6, 7 & U, 23IDE722
	6" x 9"	PM	3-4Ω	107706 ②		② Used in Models 23ID716-8 & U, 23IR716-8, 23IDE675, 6, 7 & U
	6" x 9"	PM	3-4Ω	107304 ③	69A3	③ Used in Models 23ID716-9 & U, 23IR716-9, 23IR797-9, 23ID730-4, 23ID645-6-7 & U, 23IDE742-6
	8"	PM	3-4Ω	107475 ④	8A21	④ Used in Models 23IR776, 23IR788-9, 23ID675-6
	8"	PM	7-9Ω	107526 ⑤		⑤ Used in Models 23ID694-6-8-U & 9U, 23IR695-6, 23IDE722
	3½"	PM	7-9Ω	102119 ⑥	3A15TZ9	⑥ Used in Models 23IR776, 23IR788-9, 23IR797-9, 23ID730-4, 23IR675, 6, 23IDE742-6
	4"	PM	3-4Ω	107474 ⑦	4A1	⑦ Used in Models 23ID655-6-7-U & 8U, 23IDE675-6-7, 23IB612-5-8-7-U & 8U, 23IBR615-5-7

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA RCA Victor PART No. FUSE	HOLDER	LITTELFUSE PART No. FUSE	HOLDER	BUSS PART No. FUSE	HOLDER
M1	2" length of #28 wire							
M2	2" length of #28 wire							

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA RCA Victor PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M3		109338 *	8GC1 *			* Dual Selenium Diode, Common Cathode Type
M4	1N60	76675B ♦		1N60 ♦	1N60 ♦	♦ Crystal Diode, Video Detector

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M5	Tuner (KRK87N)	109621	VHF, STANDARD COIL REPLACEMENT #GG-4230-A, Used in Chassis KCS-132N, 132ZA, 132H
	Tuner (KRK96B) ①	109330	VHF, Used in Chassis KCS-132ZC
	Tuner (KRK96D) ②	109332	VHF, Used in Chassis KCS-132AC
	Tuner (KRK96J)		VHF, Used in Chassis KCS132K, 132D, 132K, 132R
	Tuner (KRK87W)	109624	VHF, Used in Chassis KCS132M, 132W, 132F
	Tuner (KRK87T)	109623	VHF, Used in Chassis KCS132ZF, 132AA
	Tuner (KRK98C)		VHF
	Tuner (KRK98A)		VHF, Used in Chassis KCS132ZAD, 132ZH
	Tuner (KRK97M)	109620	VHF
	Tuner (KRK87P, R)	109622	VHF
	Tuner (KRK92C)	109593	VHF, Used in Chassis KCS132K
	Tuner (KRK102A)	109590	VHF, Used in Chassis KCS132L
	Tuner (KRK102B)	109592	VHF, Used in Chassis KCS132M
	Tuner (KRK97D) ③	109339	VHF with UHF Provisions, Used in Chassis KCS132AD
	Tuner (KRK97B) ④	109338	VHF with UHF Provisions, Used in Chassis KCS132ZE, 132ZD
	Tuner (KRK97Z)	109343	VHF with UHF Provisions, Used in Chassis KCS132L, KCS132T, 132S
	Tuner KRK96A ①	109329	VHF with UHF Provisions
	Tuner KRK99A	109632	VHF with UHF Provisions
	Tuner (KRK86AC)	106499	UHF, Used in Chassis KCS132ZK, KCS132ZD, 132ZP
	Tuner (KRK86AF)	106499	UHF, Used in Chassis KCS132L, 132T, 132AD, 132E, 132ZJ
	Tuner (KRK86AD)		UHF, Used in Chassis KCS132ZAE
M6	Magnet, Centering	107192	Chassis KCS132
	Switch	107774	TV Off-On, Chassis KCS132AA Only
	Printed Board	109313	Video Circuit, Less Tubes, Chassis KCS132K, L, R, T, AA, AC,
	Printed Board	109314	Video Circuit, Less Tubes, Chassis KCS132N, & ZA and AD
	Printed Board	109315	Deflection, Less Tubes

① Tuner #KRK70F used as replacement for KRK96B (#107998).
② Tuner #KRK70H used as replacement for KRK96D (#109038).
③ Tuner #KRK7LJ used as replacement (#109040).
④ Tuner #KRK7LH used as replacement (#109022).
⑤ Tuner #KRK70E used as replacement (#107746)

(POWER TUNING) MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M7	Switch	107217	Off-On Pneumatic Master Switch, Bellows and Support Assembly (Part of TMAIS Assembly)
M8	Switch	109413	Channel Selector Actuating
M9	Switch	109405	Motor Off-On
M10	Motor	109404	Tuner Drive

WIRING DATA

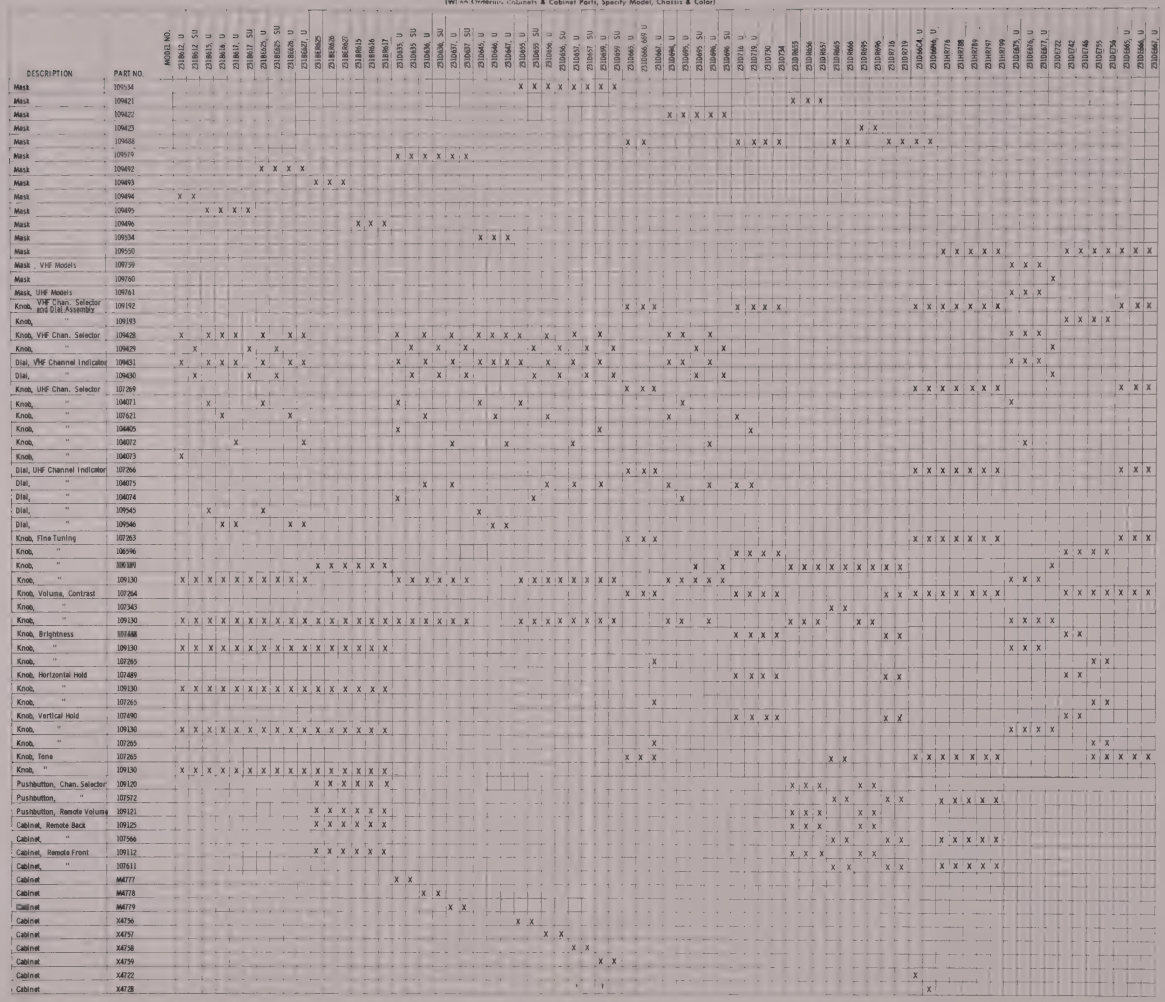
High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8534 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8276
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

RCA VICTOR CHASSIS KCS132AC, AD, D, E, F, H, K, L, M, N, R, T, W, ZC, ZD, ZJ

FOLDER 1

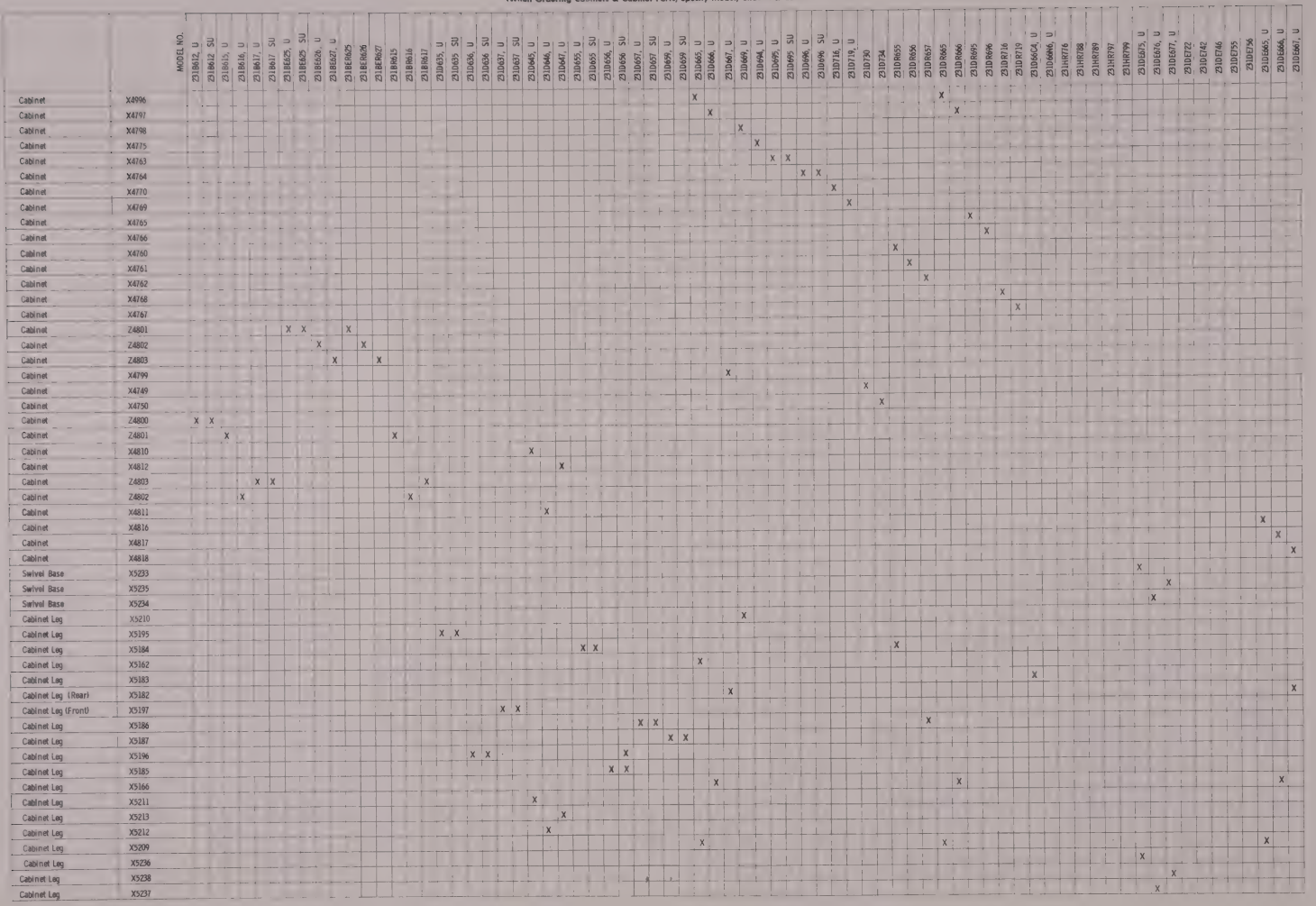
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)



CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)



REMOTE CONTROL RECEIVER
PARTS LIST AND DESCRIPTIONS

KRS24C

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V17	1st 40KC Amp.	6AU6
V18	2nd 40KC Amp. - 3rd 40KC Amp.	12AX7
V19	40KC Driver - 40.75KC Rect. - 43.25KC Rect.	6BN8
V20	Channel Selector Relay Control Amp. - Volume Relay Control Amp.	6CM7

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C78	50	25	94667 *	PRSI265	BBR50-25	TC29	TD-50-25	TVA-1206	

* Late production chassis use 100mfd@ 25V (Pt. #108020).

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C79	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C80	330		DI-330	DD-331	L10T33	CCD-331	B-333	10TS-T33
C81	150		DI-150	DD-151	L10T15	CCD-151	B-315	10TS-T15
C82	120		DI-120	DD-121	L10T12	CCD-121	GP312	10TS-T12
C83	120		DI-120	DD-121	L10T12	CCD-121	GP312	10TS-T12
C84	.47 200V		P288N-47		CUB2P47	2DP-4-474	GEM-2047	2TM-P47
C85	.22 400V		P488N-22		CUB4P22	4DP-5-224	GEM-4022	4TM-P22
C86	120		DI-120	DD-121	L10T12	CCD-121	GP312	10TS-T12
C87	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C88	680 10%		1469-00068		5R5T68	CM-19B-681K	MCJ249	MS-368
C89	.047 200V 10%		V84C2S47-10%		PM2S47	4DP-3-473	GEM-1615	2TM-S47
C90	680 10%		1469-00068		5R5T68	CM-19B-681K	MCJ249	MS-368
C91	.033 200V 10%		V84C2S33-10%		PM4S33	4DP-2-333	GEM-1613	4TM-S33
C92	10000		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C93	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C94	10000		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C95	10000		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C96	10000		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C97	10000		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R102	100K			
R103	150K			
R104	470K			
R105	1meg			
R106	1meg			
R107	2200Ω 1W			
R108	100K			
R109	100K			
R110	100K			
R111	100K			
R112	2.2meg			
R113	100K *			
R114	270K			
R115	39K 1W			
R116	2.2meg			
R117	1meg			
R118	12K			
R119	3.9meg			
R120	3.9meg			(10meg) †
R121	2.2meg			
R122	1meg			
R123	2200Ω			(10K) *
R124	5600Ω			(12K) *
R125	18K			(48K) *

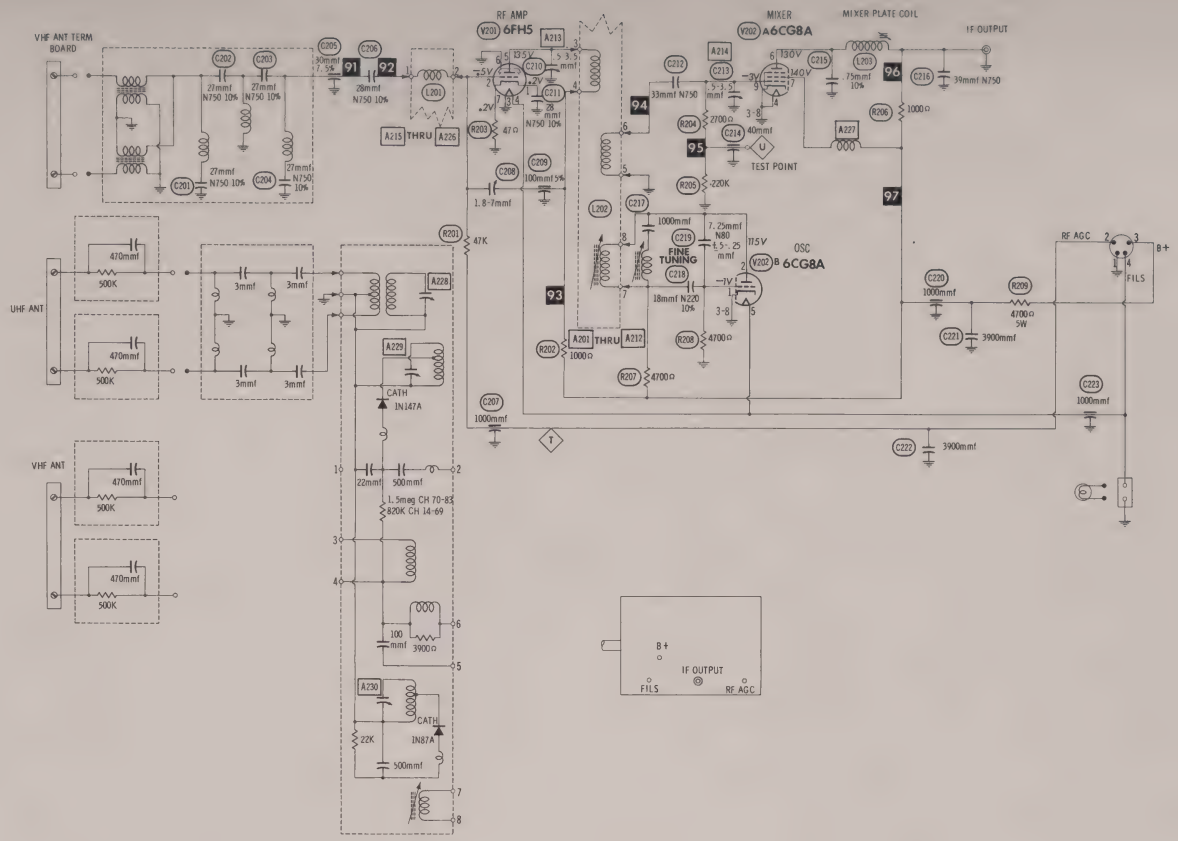
* Alternate Value. † Used in late production chassis.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA RCA Victor PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L22	40.75KC	107539					
L23	43.25KC	107539					

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M11	Relay	107405	Channel Selector
M12	Relay	109124	Volume Control



A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE

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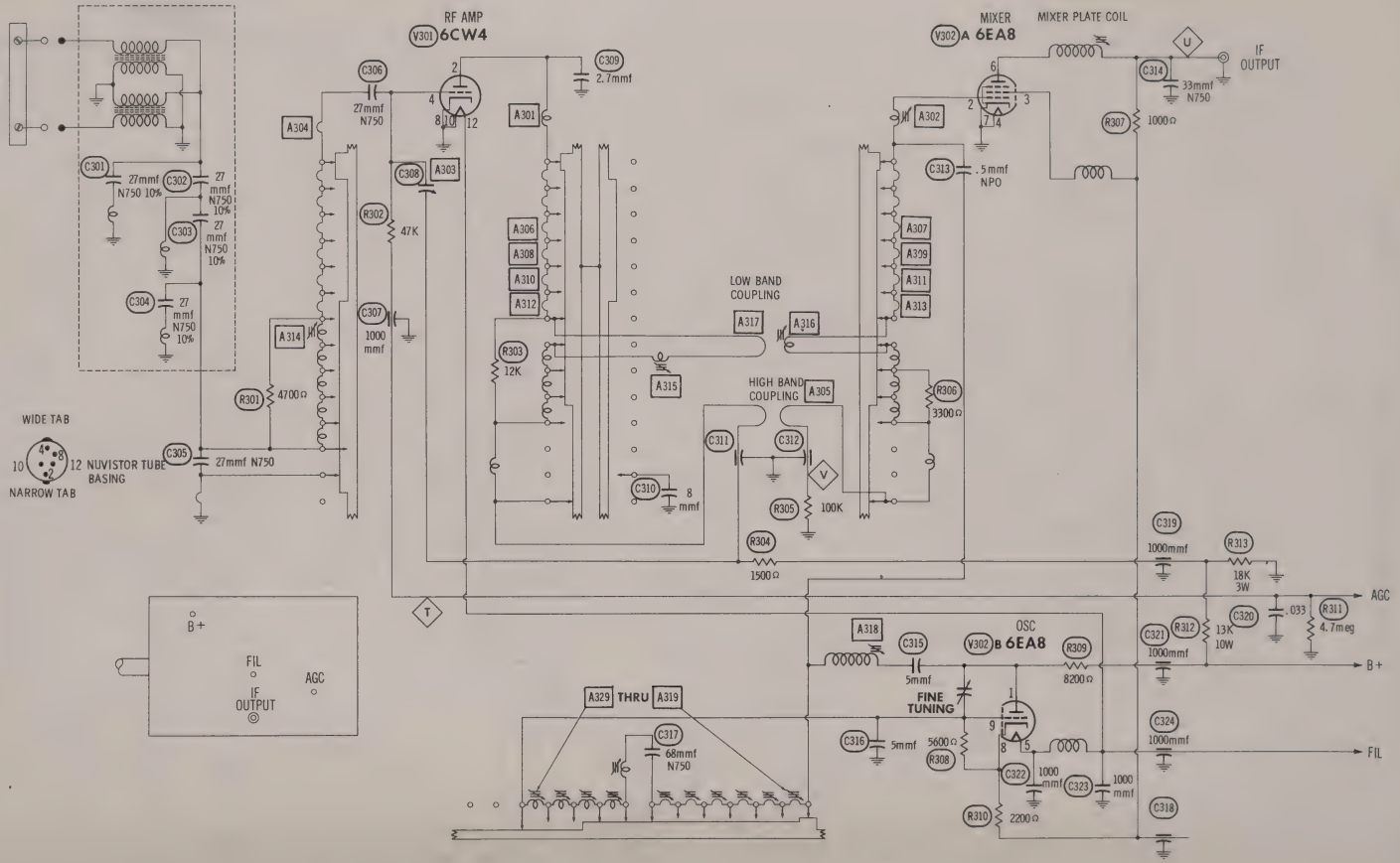
VHF TUNER KRK87N, T, W, VHF/UHF TUNER KRK87M, P, R, W

RCA VICTOR CHASSIS KCS132AC, AD, D,
E, F, H, K, L, M, N, R, T, W, ZC, ZD, ZJ



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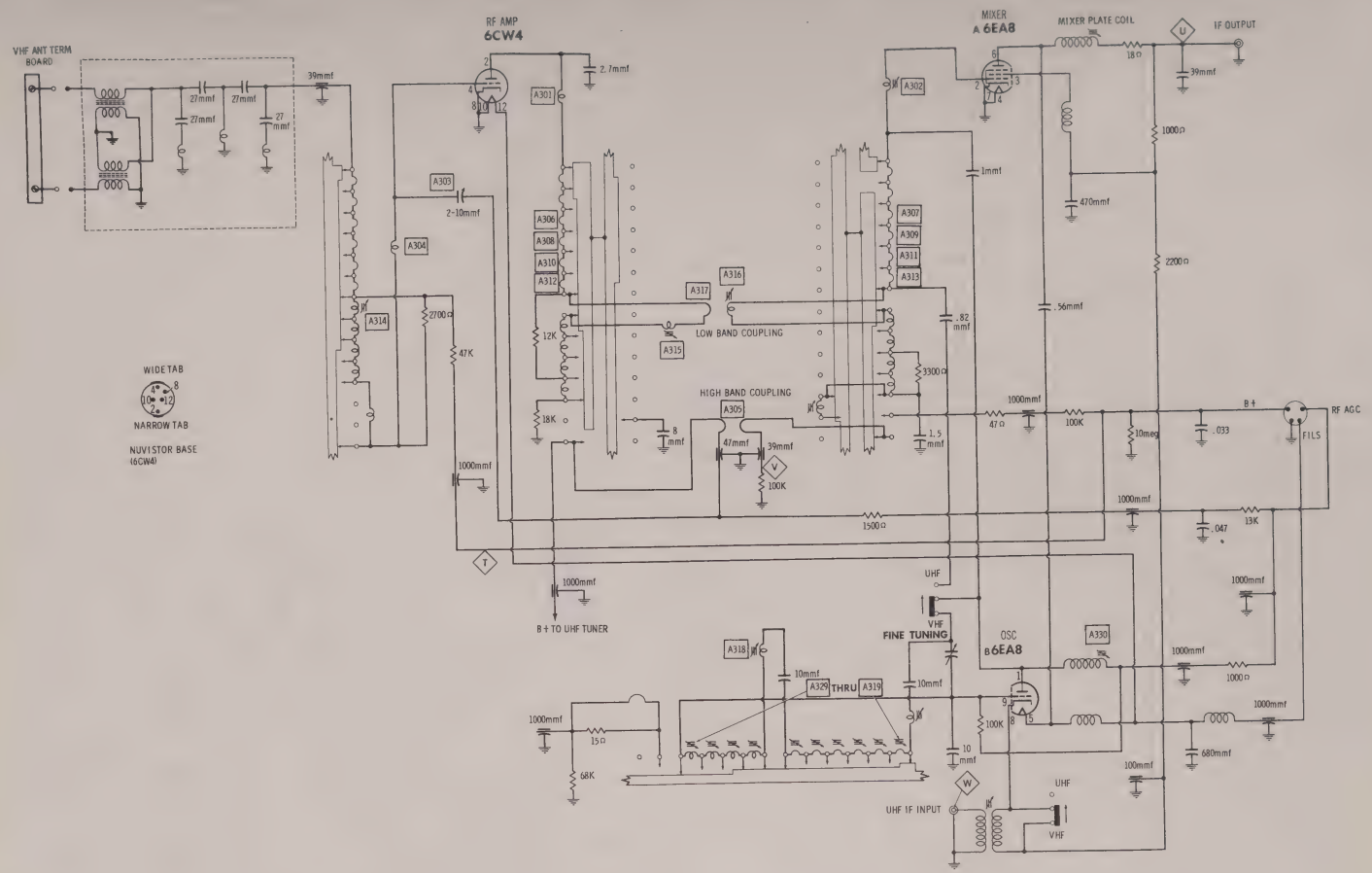
VHF TUNER KRK98C



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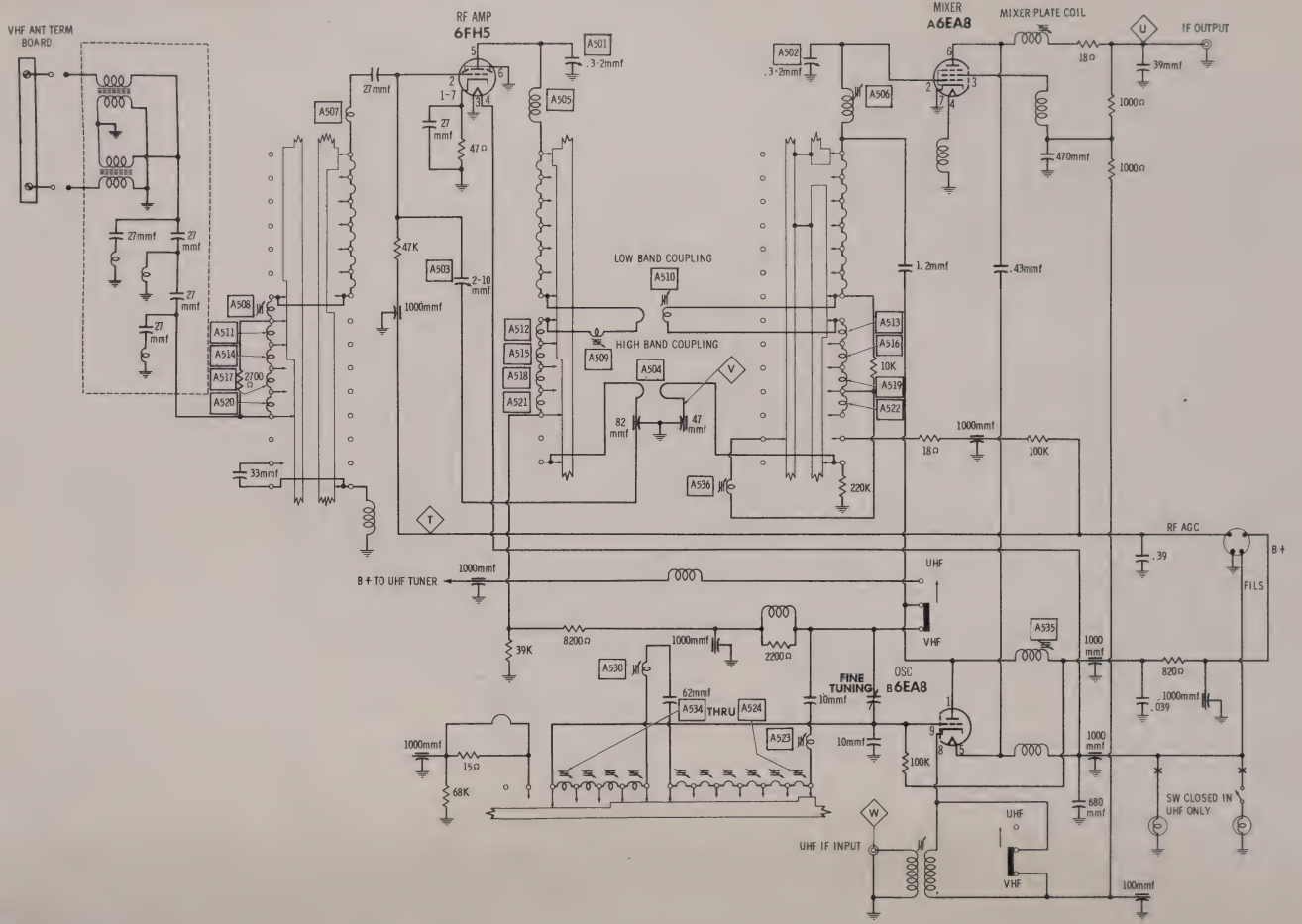
VHF TUNER with UHF Provisions - KRK99A

RCA VICTOR CHASSIS KCS132AC, AD, D,
E, F, H, K, L, M, N, R, T, W, ZC, ZD, ZJ



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VHF TUNER with UHF Provisions - KRK97B, D, J

TUNER PARTS LIST AND DESCRIPTIONS

KRK98C

TUBES

• GENERAL ELECTRIC •		RAYTHEON • SYLVANIA •			
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V301	RF Amp.	6CW4	V302	Mixer - Osc.	6EA8

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C301	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C302	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C303	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C304	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C305	27 N750		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C306	27 N750		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C307	1000		EF-001	MFT-1000		CCF-102	CT280A	
C308								
C309	2.7							
C310	8		NPO-DI 8.2		C10V8C			10TCC-V82
C311								
C312								
C313	.5 NPO			TCZ-R5				
C314	33 N750		N750-DI 33	TCN-33	C10Q33U	CCTN-330	CN7-433	10TCU-Q33
C315	5		NPO-SI 5.0	TCZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C316	5		NPO-SI 5.0	TCZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C317	68 N750		N750-DI 68	TCN-68	C10Q68U	CCTN-680	CN7-468	10TCU-Q68
C318								
C319	1000		EF-001	MFT-1000		CCF-102	CT280A	
C320	.033 200V		P288N-033	DD-303	CUB6S33	4DP-2-333	GEM-4133	6TM-S33
C321	1000		EF-001	MFT-1000		CCF-102	CT280A	
C322	1000		BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C323	1000		BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C324	1000		EF-001	MFT-1000		CCF-102	CT280A	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R301	4700Ω				R308	5600Ω			
R302	47K				R309	8200Ω			
R303	12K				R310	2200Ω			
R304	1500Ω				R311	4.7meg			
R305	100K				R312	13K 10W		10G-13K	
R306	3300Ω				R313	18K 3W		3G-18K	
R307	1000Ω								

TUNER ALIGNMENT INSTRUCTIONS

KRK98A, C, 99A

PRE-ALIGNMENT INSTRUCTIONS FOR TUNER #KRK98 AND KRK99

Allow a 20 minute warm-up period for the receiver and test equipment.

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Connect the negative lead of a 2.5 volt bias supply to point (T). Positive to chassis.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Across VHF Antenna Terminals thru pad (Fig. 301).	195MC	193.25MC 197.75MC	10	Vert. Amp. to point (U). Low side to chassis.	A301, A302	Adjust for maximum gain and symmetry of response similar to Fig. 302 with markers as shown. If oscillation is obtained and distorts the waveform, adjust A303 for MINIMUM gain and repeat adjustments of A301 and A302.
2.	"	"		"	"	A303	Increase bias to -10 to -15 volts. Adjust A303 for MINIMUM response.
3.	"	207MC	205.25MC 209.75MC	12	"	A304	Return bias to 2.5volts. Adjust A304 for maximum gain at center of curve.
4.	"	"	"	"	"	A301, A302, A305	Adjust for maximum gain and symmetry of response similar to Fig. 302 with markers as shown. Adjust A301 for correct freq. Adjust A302 for correct tilt. Position A305 for bandwidth.
5.	"	195MC	193.25MC 197.75MC	10	"	A306, A307	Adjust for flat response.
6.	"	189MC	187.25MC 191.75MC	9	"	A308, A309	"
7.	"	183MC	181.25MC 185.75MC	8	"	A310, A311	"
8.	"	177MC	175.25MC 179.75MC	7	"	A312, A313	"
9.	"	85MC	83.25MC 87.75MC	6	"	A314, A315, A316, A317	Adjust for maximum gain and symmetry of response similar to Fig. 302 with markers as shown. Adjust A314 for amplitude, A315 for frequency, A316 for proper tilt and A317 for bandwidth.
10.	Turn off generator.			12	Use VTVM DC probe to point (V). Common to chassis.		Check Oscillator injection voltage. It should be between -2.0 to -5.0 volts.

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect the negative lead of a 2.5 volt bias supply to point (T). Positive to chassis.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Across VHF Antenna Terminals thru pad (Fig. 301).	Not Used	257MC	13	Vert. Amp. to point (U). Low side to chassis.	A318	Adjust for zero beat.
12.	"	"	251MC	12	"	A319	"
13.	"	"	245MC	11	"	A320	"
14.	"	"	239MC	10	"	A321	"
15.	"	"	233MC	9	"	A322	"
16.	"	"	227MC	8	"	A323	"
17.	"	"	221MC	7	"	A324	"
18.	"	"	129MC	6	"	A325	"
19.	"	"	123MC	5	"	A326	"
20.	"	"	113MC	4	"	A327	"
21.	"	"	107MC	3	"	A328	"
22.	"	"	101MC	2	"	A329	"

CONTINUED ON PAGE 31

TUNER PARTS LIST AND DESCRIPTIONS

KRK 87

TUBES

• GENERAL ELECTRIC •		RAYTHEON •	SYLVANIA •
ITEM No.	USE	TYPE	
V201	RF Amp.	6FH5	
V202	Mixer - Osc.	6CG8A	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C202	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C203	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C204	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C205	30 7.5%	#107876						
C206	28 N750 10%			TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C207	1000		EF-001	MFT-1000		CCF-102	CT280A	
C208	1. 8-7	#107886		829-7				
C209	100 5%	#107879						
C210	.5-3.5	#109218						
C211	28 N750 10%			TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C212	33 N750		N750-DI 33	TCN-33	C10Q33U	CCTN-330	CN7-433	10TCU-Q33
C213	.5-3.5	#109218						
C214	40	#107881						
C215	.75 10%	#109425						
C216	39 N750			TCN-39	C10Q39U	CCTN-390	CN7-439	10TCU-Q39
C217	1000		BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C218	18 N220 10%	#107884				*		
C219	7. 25 N80 +.5-.25mmf	#109424						
C220	1000		EF-001	MFT-1000		CCF-102	CT280A	10TCR-Q18
C221	39000			DD-403	BYB6S4	6DP-3-403	GP140	6TM-S40
C222	39000			DD-403	BYB6S4	6DP-3-403	GP140	6TM-S40
C223	1000		EF-001	MFT-1000		CCF-102	CT280A	

\# RCA Victor Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R201	47K				R205	220K			
R202	1000Ω				R206	1000Ω			
R203	47Ω				R207	4700Ω			
R204	2700Ω				R208	4700Ω			
					R209	4700Ω 5W	PW5 4700Ω	5W SQ 4700Ω	#106975

COILS (RF-IF)

ITEM No.	USE	RCA Victor PART No.	NOTES
L201	Ant. Trans.	107896	
L202A	Ant., RF, Mixer Grid, Osc. Coils	107898	Channel 2
B	"	107899	Channel 3
C	"	107900	Channel 4
D	"	107901	Channel 5
E	"	107902	Channel 6
F	"	107903	Channel 7

ITEM No.	USE	RCA Victor PART No.	NOTES
L202G	Ant., RF, Mixer Grid, Osc. Coils	107904	Channel 8
H	"	107905	Channel 9
J	"	107906	Channel 10
K	"	107907	Channel 11
L	"	107908	Channel 12
M	"	107909	Channel 13
L203	Mixer Plate Coil	107889	

TUNER ALIGNMENT INSTRUCTIONS

KRK87M, N, P, R, T, W
KRK102A, B, C

PRE-ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools: A201 thru A212 .... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A213, A214 ..... GENERAL CEMENT #8607, 9291, 9294
WALSCO #2520, 2522, 2523, 2524, 2534, 2537

VHF OSCILLATOR ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point Ⓣ. Positive to chassis.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Set Fine Tuning to the center for each channel by pushing in on the Fine Tuning knob and turning fully clockwise, then counterclockwise three (3) full turns. Repeat for each channel to be adjusted.
Connect a 39 ohm composition resistor in series with a 1000mmf capacitor across the tuner output jack.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Across VHF antenna terminals thru matching pad (See Fig. 201).	257MC	13	Vert. Amp. thru 10K to point Ⓤ. Low side to chassis.	A201	Adjust for zero beat.
	"	251MC	12	"	A202	"
	"	245MC	11	"	A203	"
	"	239MC	10	"	A204	"
	"	233MC	9	"	A205	"
	"	227MC	8	"	A206	"
	"	221MC	7	"	A207	"
	"	129MC	6	"	A208	"
	"	123MC	5	"	A209	"
	"	113MC	4	"	A210	"
	"	107MC	3	"	A211	"
	"	101MC	2	"	A212	"

VHF RF AND MIXER ALIGNMENT

Connect Bias as under "VHF Oscillator Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Leave tuner output jack terminated as under "VHF Oscillator Alignment".

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
2.	Across VHF antenna terminals thru matching pad (Fig. 201).	195MC (10MC Swp.)	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point Ⓤ. Low side to chassis.	A213, A214	Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown.
	"	213MC	211.25MC 215.75MC	13	"	A215	If necessary, adjust to correct for improper tilt.
	"	207MC	205.25MC 209.75MC	12		A216	Adjust by expanding or compressing coil turns.
	"	201MC	199.25MC 203.75MC	11		A217	"
	"	195MC	193.25MC 197.75MC	10		A218	"
	"	189MC	187.25MC 191.75MC	9		A219	"
	"	183MC	181.25MC 185.75MC	8		A220	"
	"	177MC	175.25MC 179.75MC	7		A221	"
	"	85MC	83.25MC 87.75MC	6		A222	"
	"	79MC	77.25MC 81.75MC	5		A223	"
	"	69MC	67.25MC 71.75MC	4		A224	"
	"	63MC	61.25MC 65.75MC	3		A225	"
	"	57MC	55.25MC 59.75MC	2		A226	"

If bandwidth is out of limits on most high VHF channels (7-13), adjust A227 by expanding or compressing coil turns.

CONT'D ON PAGE 29

TUNER PARTS LIST AND DESCRIPTIONS

KRK102

TUBES

* GENERAL ELECTRIC *			RAYTHEON *		SYLVANIA *	
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V401	RF Amp.	6CW4	V402	Mixer - Osc.	6CG8A

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C401	27 N750		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C402	27 N750		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C403	27 N750		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C404	27 N750		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C405	30 7.5%	#107876						
C406	20 5%	#109594		DTZ-20	C10Q20C		CNO-422	10TCC-Q20
C407	1000		EF-001	MFT-1000		CCF-102	CT280A	
C408	1.8-7	#109617		829-7				
C409	47							
C410	1.8-7	#109598		829-7				
C411	33	#109596						
C412	.5-3			829-3		CV-1	CT565	
C413	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C414	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C415	7.25 N80 +.5-.25mmf	#109424						
C416	18 N220 10% ①	#107884				*		10TCR-Q18
C417	1000		EF-001	MFT-1000		CCF-102	CT280A	
C418	1000		EF-001	MFT-1000		CCF-102	CT280A	
C419	1000		EF-001	MFT-1000		CCF-102	CT280A	

RCA Victor Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
① May not be used in some versions.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R401	47K			(120K) *
R402	3900Ω			
R403	3900Ω			
R404	2200Ω			

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R405	220K			
R406	1000Ω			
R407	4700Ω			
R408	4700Ω			

* Alternate Value.

COILS (RF-IF)

ITEM No.	USE	RCA Victor PART No.	NOTES
L401	Ant. Trans.	109615	
L402A	Ant., RF, Mixer Grid, Osc. Coils	109599	Channel 2
B	"	109600	Channel 3
C	"	109601	Channel 4
D	"	109602	Channel 5
E	"	109603	Channel 6
F	"	109604	Channel 7

ITEM No.	USE	RCA Victor PART No.	NOTES
L402G	Ant., RF, Mixer Grid, Osc. Coils	109605	Channel 8
H	"	109606	Channel 9
J	"	109607	Channel 10
K	"	109608	Channel 11
L	"	109609	Channel 12
M	"	109610	Channel 13
L403	Mixer Plate Coil	109619	

TUNER ALIGNMENT INSTRUCTIONS

KRK96A,B,D,J, 97B,D,J

PRE-ALIGNMENT INSTRUCTIONS FOR TUNERS #KRK96 AND KRK97

Allow a 20 minute warm-up period for the receiver and test equipment.

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Connect the negative lead of a 2.5volt bias supply to point ⟨T⟩. Positive to chassis.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Across VHF Antenna Terminals thru pad (Fig. 501).	183MC	181.25MC 185.75MC	8	Vert. Amp. to point ⟨U⟩. Low side to chassis.	A501, A502	Adjust for maximum gain and symmetry of response similar to Fig. 502 with markers as shown. If oscillation is obtained and distorts the waveform, adjust A503 for MINIMUM gain and repeat adjustment of 501 and 502.
2.	"	195MC		10	"	A503	Increase bias to -10 to 15 volts. Adjust A503 for MINIMUM response.
3.	"	183MC	181.25MC 185.75MC	8	"	A501, A502, A504	Adjust A501 for proper frequency, A502 for A502 for proper tilt and A504 for proper bandwidth.
4.	"	213MC	211.25MC 215.75MC	13	"	A505, A506	Adjust A505 for proper frequency and A506 for proper tilt.
5.	"	"	"	"	"	A507	Adjust for maximum gain at center of response. Repeat steps 3 and 4.
6.	Turn generator off.				Use VTVM DC probe to point ⟨V⟩. Common to chassis.		With generator turned off, measure oscillator injection voltage. It should be between -2 and -5 volts.
7.	Across VHF Antenna Terminals thru pad (Fig. 501).	85MC	83.25MC 87.75MC	6	Vert. Amp. of scope to point ⟨U⟩. Low side to chassis.	A508, A509, A510	Adjust for maximum gain and symmetry of response similar to Fig. 502 with markers as shown. First adjustment is for amplitude, second for frequency and third for tilt.
8.	"	79MC	77.25MC 81.75 MC	5	"	A511, A512, A513	"
9.	"	69MC	67.25MC 71.75MC	4	"	A514, A515, A516	"
10.	"	63MC	61.25MC 65.75MC	3	"	A517, A518, A519	"
11.	"	57MC	55.25MC 59.75MC	2	"	A520, A521, A522	"

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect the negative lead of a 2.5 volt bias supply to point ⟨T⟩. Positive to chassis.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Across VHF Antenna Terminals thru pad (Fig. 501).	Not Used	257MC	13	Vert. Amp. to point ⟨U⟩. Low side to chassis.	A523	Adjust for zero beat.
13.	"	"	251MC	12	"	A524	"
14.	"	"	245MC	11	"	A525	"
15.	"	"	239MC	10	"	A526	"
16.	"	"	233MC	9	"	A527	"
17.	"	"	227MC	8	"	A528	"
18.	"	"	221MC	7	"	A529	"
19.	"	"	129MC	6	"	A530	"
20.	"	"	123MC	5	"	A531	"
21.	"	"	113MC	4	"	A532	"
22.	"	"	107MC	3	"	A533	"
23.	"	"	101MC	2	"	A534	"

TUNER ALIGNMENT INSTRUCTIONS (cont)

KRK96B, D, J, 97B, D, J

UHF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Connect the negative lead of a 2.5 volt bias supply to point ⊖. Positive to chassis.
Connect a 180Ω resistor across input cable of scope.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
24.	High side thru input lead (Fig. 503) to point ⓦ. Low side to chassis.	45MC (10MC Swp.)	41.25MC 45.75MC	UHF Any	Vert. Amp. thru 330mmf to plate of Mixer. Low side to chassis.	A535, A536	Adjust for maximum gain and symmetry of response similar to Fig. 504 with markers as shown.
25.	Across UHF Antenna Terminals.	To center frequency of channel to be received. (See Chart #2, Page 29).	"	Channel to be received	Scope across Video Det. Load	A535, A536	Retouch for response similar to Fig. 505.

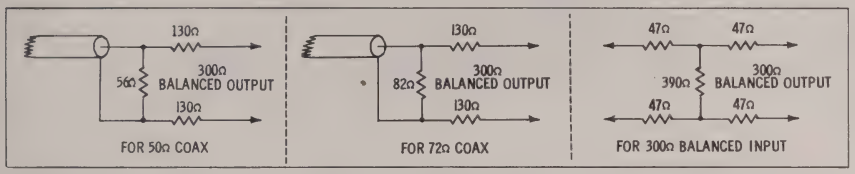


FIG. 501

FIG. 502

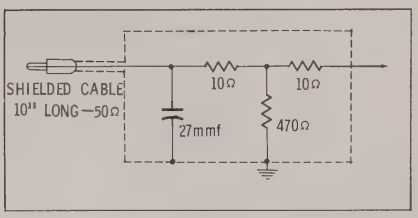


FIG. 503

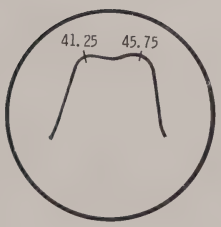


FIG. 504

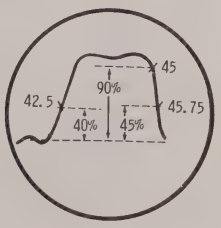
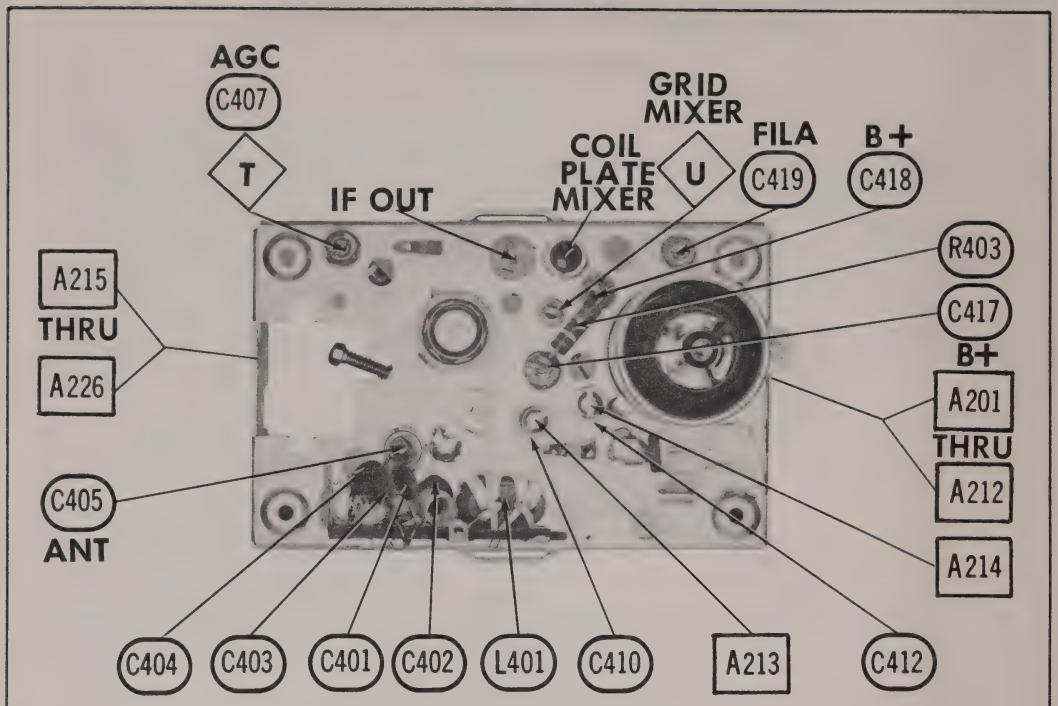
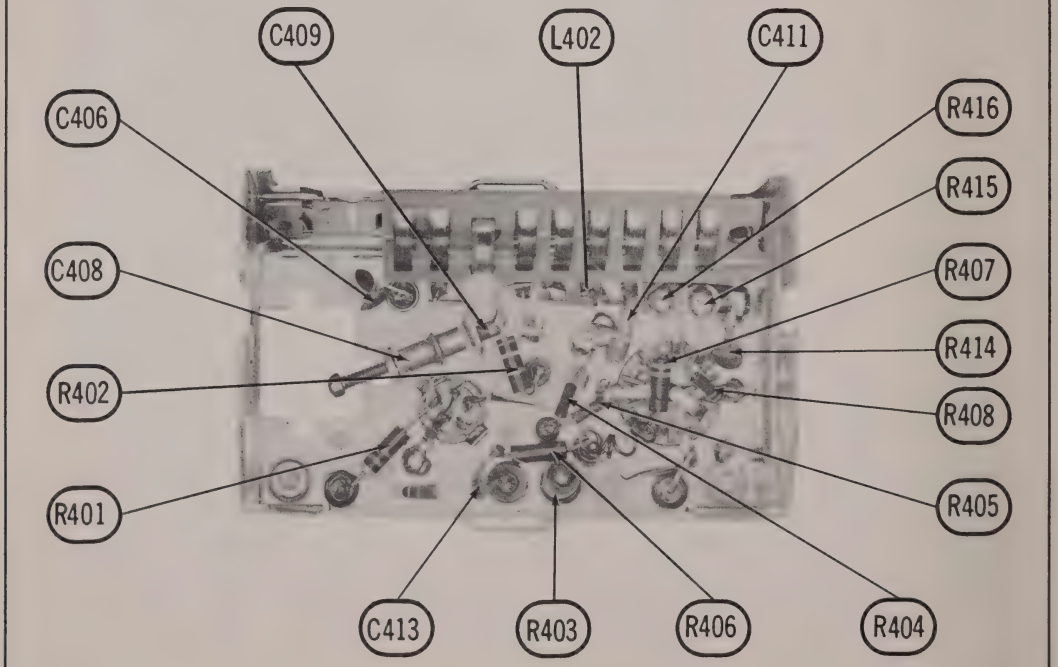


FIG. 505



TUNER KRK102 - TOP VIEW



TUNER KRK 102-BOTTOM VIEW

TUNER ALIGNMENT INSTRUCTIONS
KRK87M, N, P, R, T, W, KRK102A, B, C

UHF OSCILLATOR ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point Ⓣ. Positive to chassis.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Across UHF antenna terminals.	Fundamental Osc. Freq. (See Chart #1)	Channel to be received	Across Video Det. load with 10K in high side.	UHF Osc. slug	Adjust for zero beat on scope.

UHF ANTENNA, MIXER AND HARMONIC OSCILLATOR ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point Ⓣ. Positive to chassis.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	Across UHF antenna terminals.	To Center Freq. of channel to be received. (10MC Swp.) (See chart #2)		Channel to be received	Across Video Det. load thru 10K.	A228, A229, A230	Adjust for maximum gain and symmetry of response.

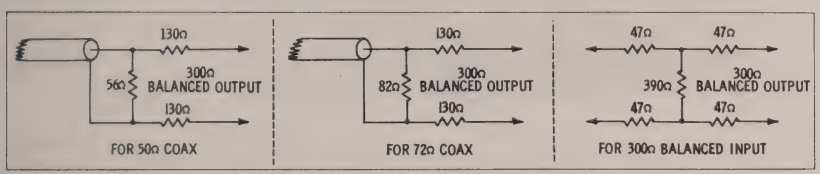


FIG. 201

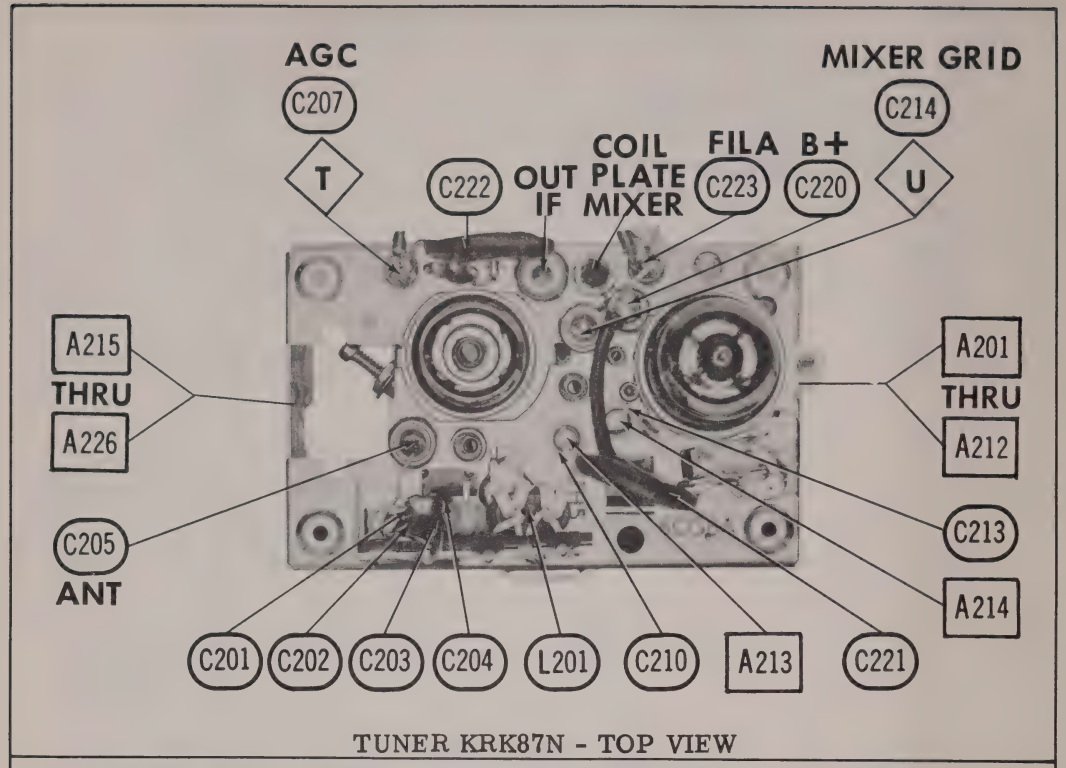
FIG. 202

CHART #1

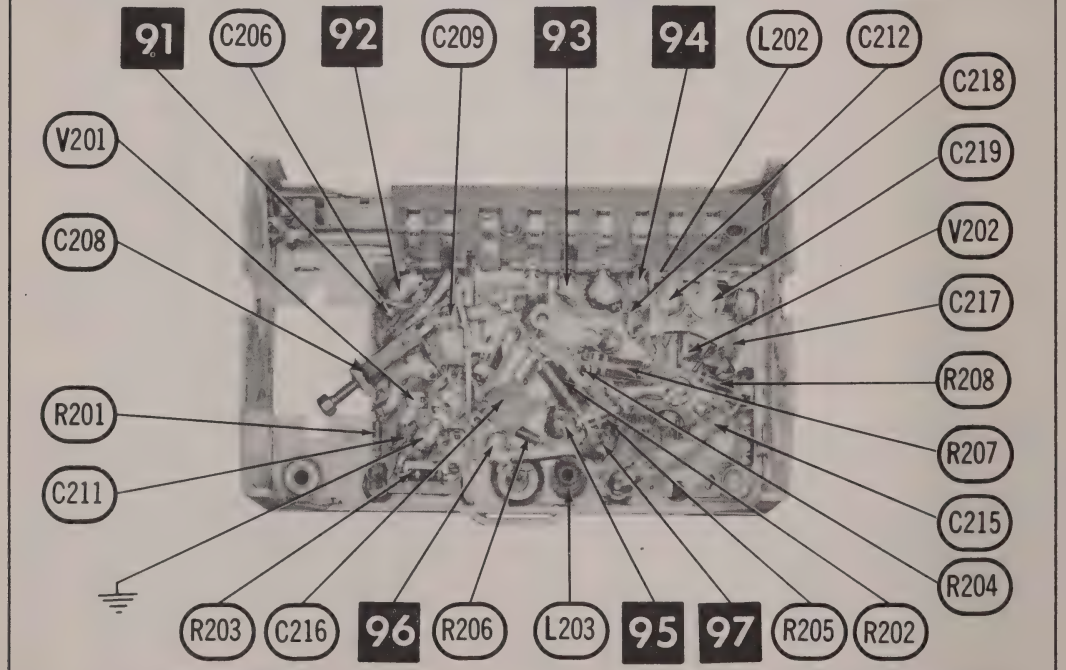
CHANNEL NUMBER	FUNDAMENTAL OSC. FREQ. (MC)	HARMONIC OSC. FREQ. (MC)	CHANNEL NUMBER	FUNDAMENTAL OSC. FREQ. (MC)	HARMONIC OSC. FREQ. (MC)	CHANNEL NUMBER	FUNDAMENTAL OSC. FREQ. (MC)	HARMONIC OSC. FREQ. (MC)
14	258.5	517	38	220.33	661	62	268.33	805
15	261.5	523	39	222.33	667	63	270.33	811
16	264.5	529	40	224.33	673	64	272.33	817
17	267.5	535	41	226.33	679	65	274.33	823
18	270.5	541	42	228.33	685	66	276.33	829
19	182.33	547	43	172.75	691	67	278.33	835
20	184.33	553	44	232.33	697	68	280.33	841
21	186.33	559	45	234.33	703	69	282.33	847
22	188.33	565	46	236.33	709	70	213.25	853
23	190.33	571	47	238.33	715	71	214.75	859
24	192.33	577	48	240.33	721	72	216.25	865
25	194.33	583	49	242.33	727	73	217.75	871
26	196.33	589	50	244.33	733	74	219.25	877
27	198.33	595	51	246.33	739	75	220.75	883
28	200.33	601	52	248.33	745	76	222.25	889
29	202.33	607	53	250.33	751	77	223.75	895
30	204.33	613	54	252.33	757	78	225.25	901
31	206.33	619	55	254.33	763	79	226.75	907
32	208.33	625	56	256.33	769	80	228.25	913
33	210.33	631	57	258.33	775	81	229.75	919
34	212.33	637	58	260.33	781	82	231.25	925
35	214.33	643	59	262.33	787	83	232.75	931
36	216.33	649	60	264.33	793			
37	218.33	655	61	266.33	799			

CHART #2

Channel No.	Frequency Band (Mc)	Video Carrier	Sound Carrier	Channel No.	Frequency Band (Mc)	Video Carrier	Sound Carrier	Channel No.	Frequency Band (Mc)	Video Carrier	Sound Carrier	Channel No.	Frequency Band (Mc)	Video Carrier	Sound Carrier
2	54-60	55.25	59.75	23	524-530	525.25	529.75	44	650-656	651.25	655.75	64	770-776	771.25	775.75
3	60-66	61.25	65.75	24	530-536	531.25	535.75	45	656-662	657.25	661.75	65	776-782	777.25	781.75
4	66-72	67.25	71.75	25	536-542	537.25	541.75	46	662-668	663.25	667.75	66	782-788	783.25	787.75
5	76-82	77.25	81.75	26	542-548	543.25	547.75	47	668-674	669.25	673.75	67	788-794	789.25	793.75
6	82-88	83.25	87.75	27	548-554	549.25	553.75	48	674-680	675.25	679.75	68	794-800	795.25	799.75
7	174-180	175.25	179.75	28	554-560	555.25	559.75	49	680-686	681.25	685.75	69	800-806	801.25	805.75
8	180-186	181.25	185.75	29	560-566	561.25	565.75	50	686-692	687.25	691.75	70	806-812	807.25	811.75
9	186-192	187.25	191.75	30	566-572	567.25	571.75	51	692-698	693.25	697.75	71	812-818	813.25	817.75
10	192-198	193.25	197.75	31	572-578	573.25	577.75	52	698-704	699.25	703.75	72	818-824	819.25	823.75
11	198-204	199.25	203.75	32	578-584	579.25	583.75	53	704-710	705.25	709.75	73	824-830	825.25	829.75
12	204-210	205.25	209.75	33	584-590	585.25	598.75	54	710-716	711.25	715.75	74	830-836	831.25	835.75
13	210-216	211.25	215.75	34	590-596	591.25	595.75	55	716-722	717.25	721.75	75	836-842	837.25	841.75
14	470-476	471.25	475.75	35	596-602	597.25	601.75	56	722-728	723.25	727.75	76	842-848	843.25	847.75
15	476-482	477.25	481.75	36	602-608	603.25	607.75	57	728-734	729.25	733.75	77	848-854	849.25	853.75
16	482-488	483.25	487.75	37	608-614	609.25	613.75	58	734-740	735.25	739.75	78	854-860	855.25	859.75
17	488-494	489.25	493.75	38	614-620	615.25	619.75	59	740-746	741.25	745.75	79	860-866	861.25	865.75
18	494-500	495.25	499.75	39	620-626	621.25	625.75	60	746-752	747.25	751.75	80	866-872	867.25	871.75
19	500-506	501.25	505.75	40	626-632	627.25	631.75	61	752-758	753.25	757.75	81	872-878	873.25	877.75
20	506-512	507.25	511.75	41	632-638	633.25	637.75	62	758-764	759.25	763.75	82	878-884	879.25	883.75
21	512-518	513.25	517.75	42	638-644	639.25	643.75	63	764-770	765.25	769.75	83	884-890	885.25	889.75
22	518-524	519.25	523.75	43	644-650	645.25	649.75								



TUNER KRK87N - TOP VIEW



A Howard W. Sams CIRCUITRACE® Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

TUNER KRK87N - BOTTOM VIEW

UHF IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Connect the negative lead of a 2.5 volt bias supply to point ⓨ. Positive to chassis.
Connect a 180Ω resistor across input cable of scope.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
23.	High side thru input lead (Fig. 303) to point ⓦ. Low side to chassis.	45MC (10MC Swp.)	41.25MC 45.75MC	UHF Any	Vert. Amp. thru 330mmf to plate of Mixer. Low side to chassis.	A330, A331	Adjust for maximum gain and symmetry of response similar to Fig. 304 with markers as shown.
24.	Across UHF Antenna Terminals.	To center freq. on channel to be received. (See Chart #2, Page 29).	"	Channel to be received.	Across Video Det. Load.	"	Retouch for response similar to Fig. 305.

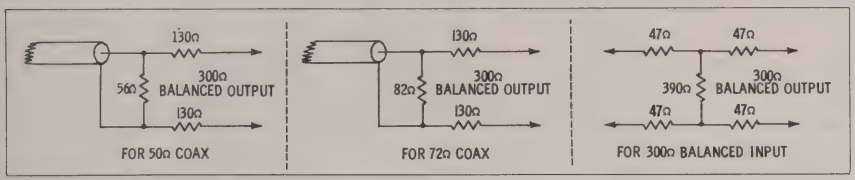


FIG. 301

FIG. 302

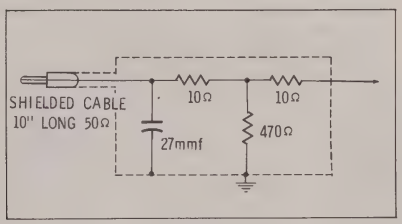


FIG. 303

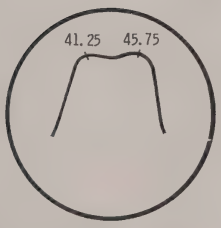


FIG. 304

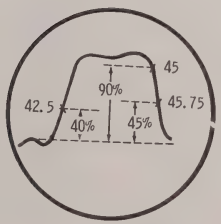
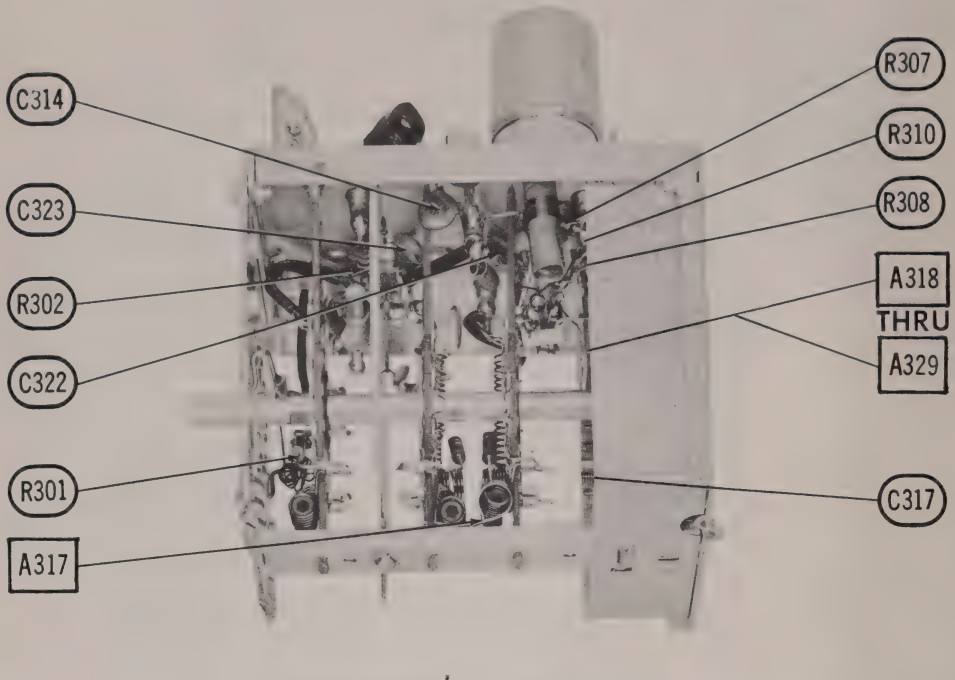
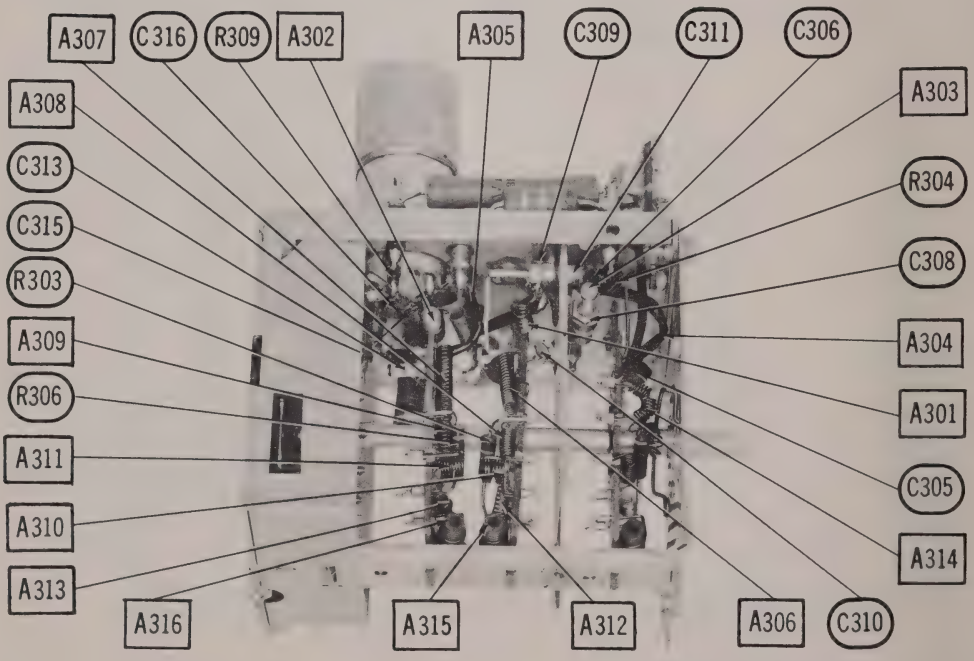


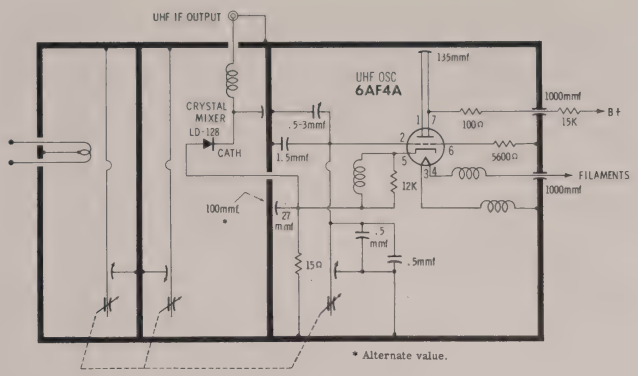
FIG. 305



TUNER KRK98C - RIGHT SIDE



TUNER KRK98C - LEFT SIDE



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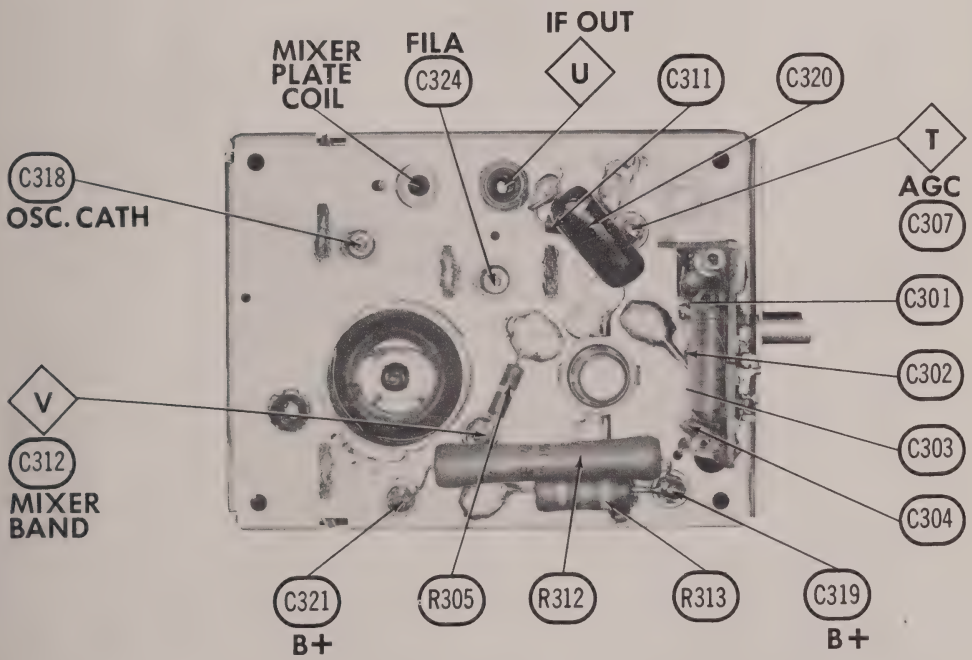
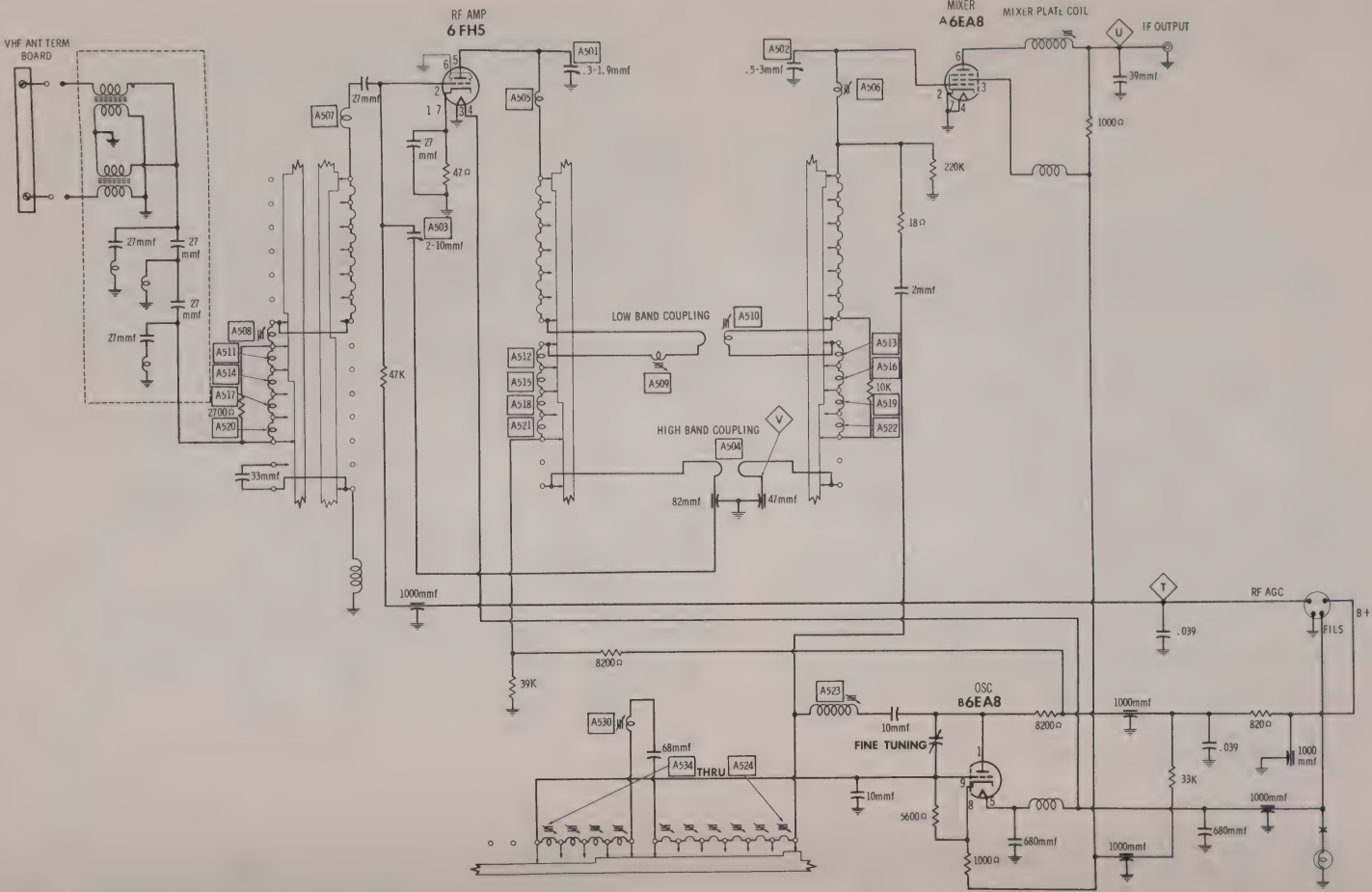
UHF TUNER KRK66AC, AF



TUNER KRK98C - TOP VIEW



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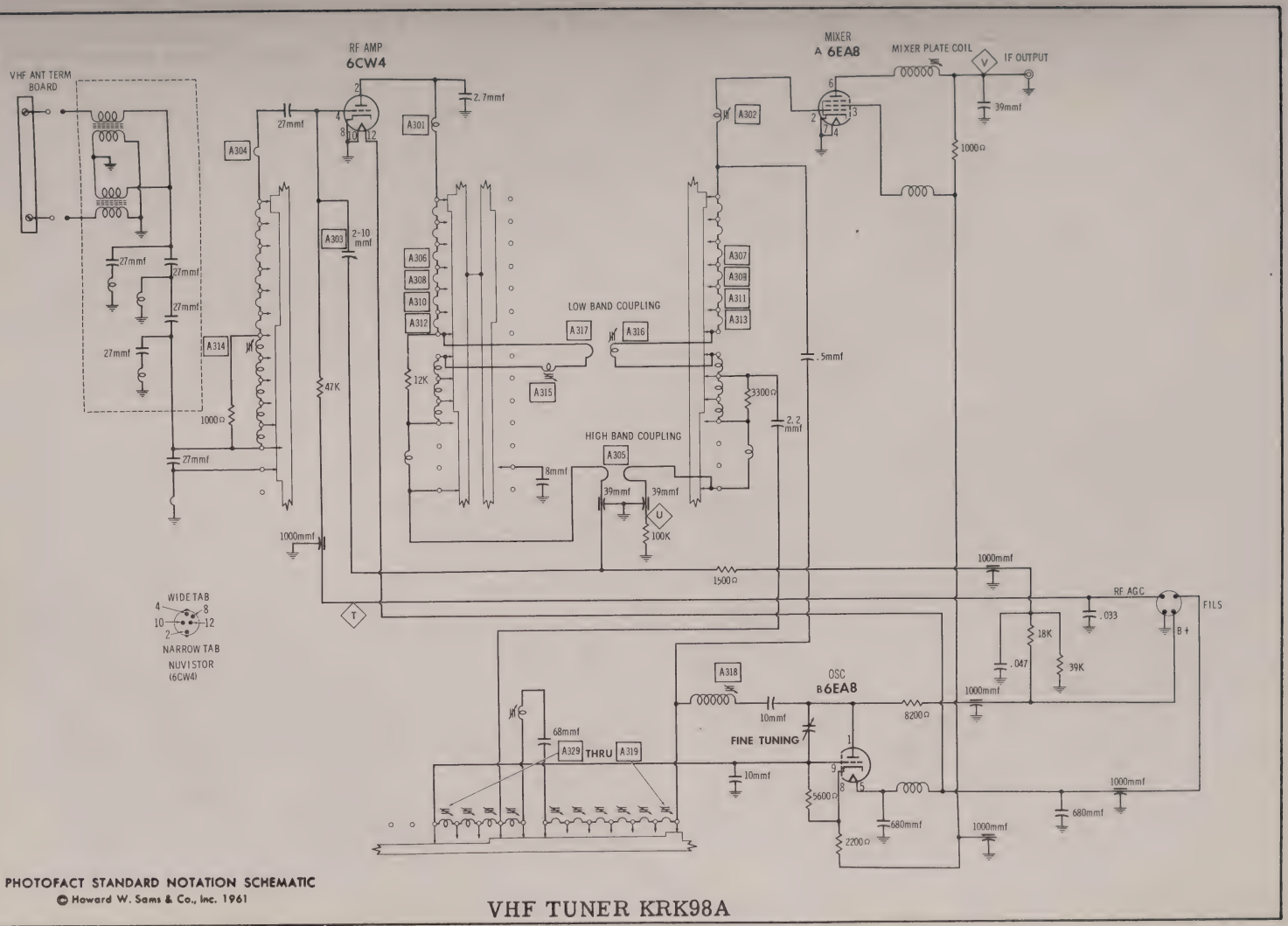
VHF TUNER KRK96A, B, D, J



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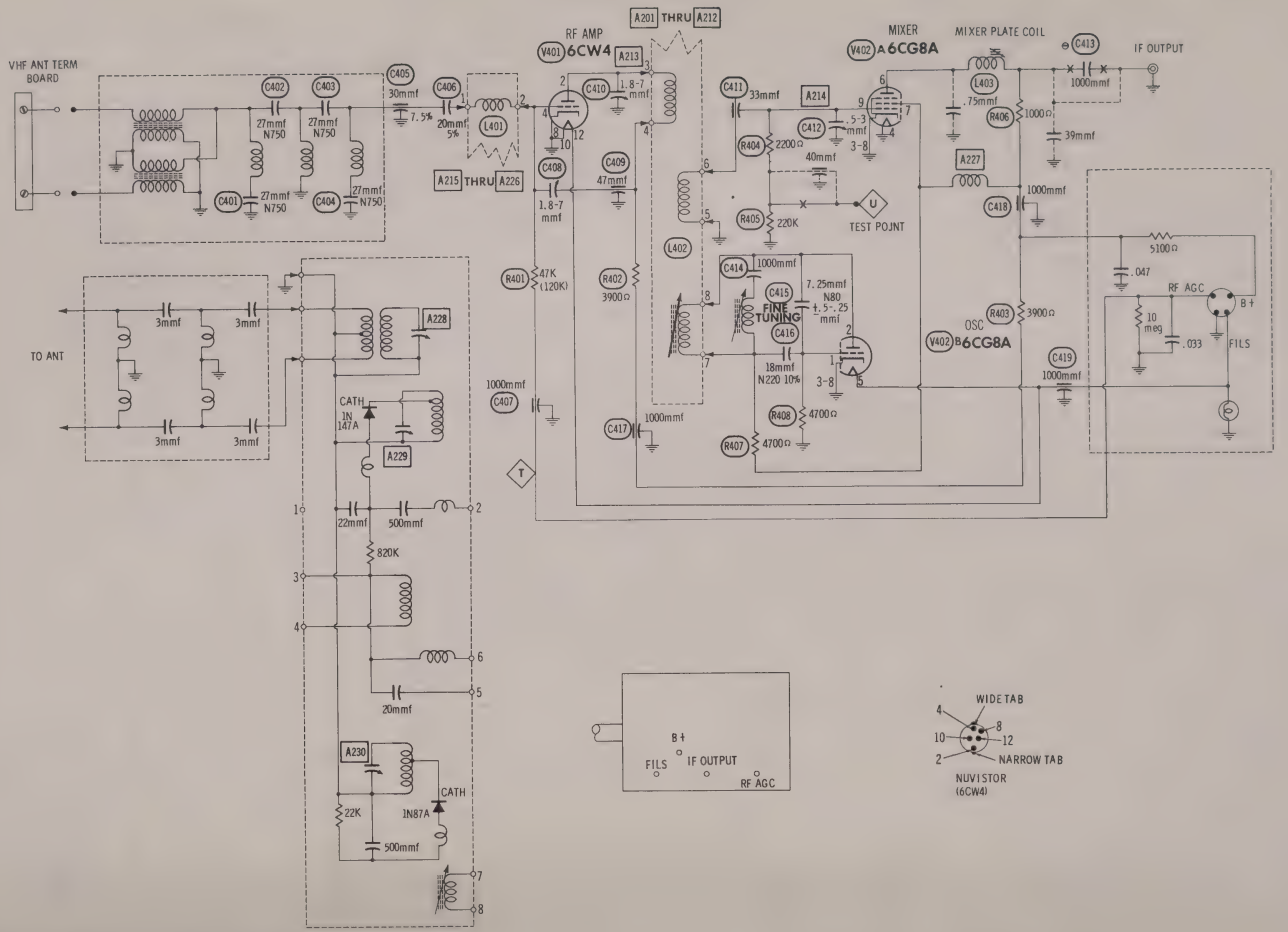
VHF TUNER KRK98A

RCA VICTOR CHASSIS KCS132AC, AD, D, E, F, H, K, L, M, N, R, T, W, ZC, ZD, ZJ



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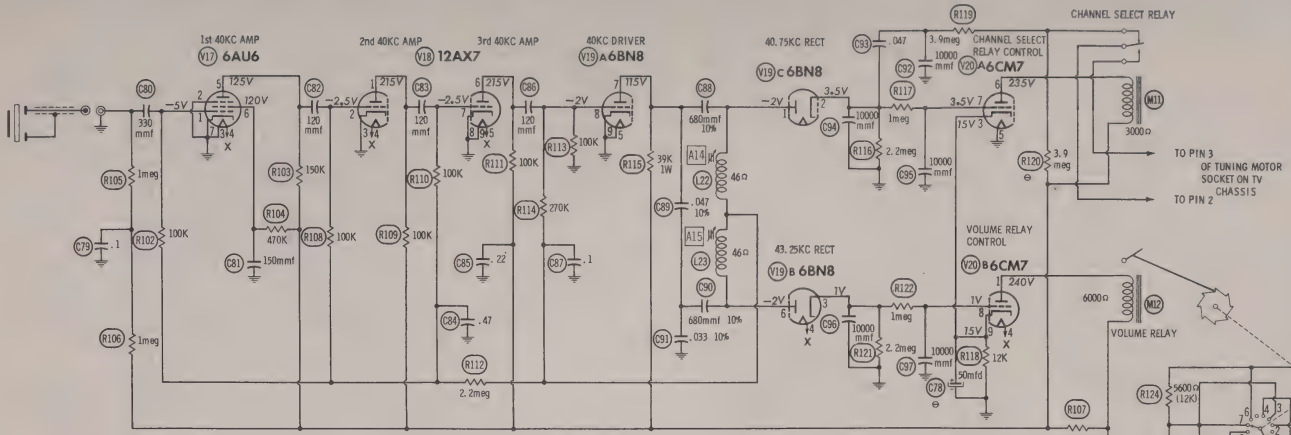
VHF TUNER with UHF Provisions - KRK102A, B, C



A PHOTOFACT STANDARD NOTATION SCHEMATIC
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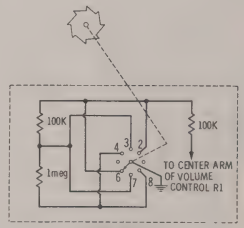
RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V17	6AU6	2.7meg	0Ω	0Ω	.1Ω	†150K	†470K	0Ω		
V18	12AX7	†100K	2.7meg	0Ω	.1Ω	.1Ω	†100K	2.7meg	0Ω	0Ω
V19	6BN8	400K	2.2meg	2.2meg	.1Ω	0Ω	400K	†40K	100K	0Ω
V20	6CM7	†6000Ω	NC	12K	.1Ω	0Ω	†3500Ω	3.2meg	3.2meg	12K

† MEASURED FROM PIN 2 OF V15 (LV RECT.) NC NO CONNECTION



ALT STEP RELAY CIRCUIT

KRS24C REMOTE CONTROL RECEIVER ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CONNECT VTVM	ADJUST	REMARKS
1.	Use a CRK3B or E transmitter which has been checked for accuracy as a signal source. Place 4 feet from receiver.	20.375KC	DC probe thru 10meg to pin 2 (cathode) of 40.75KC Rectifier. Common to chassis.	A14	Depress "Channel" button and adjust A14 for maximum deflection on VTVM.
2.	"	21.625KC	DC probe thru 10meg to pin 3 (cathode) of 43.25KC Rectifier. Common to chassis.	A15	Depress "On-Volume Up" button and adjust A15 for maximum deflection on VTVM. Repeat steps 1 and 2.

REMOTE CONTROL RECEIVER KRS24C

ALIGNMENT INSTRUCTIONS
REMOTE CONTROL RECEIVER

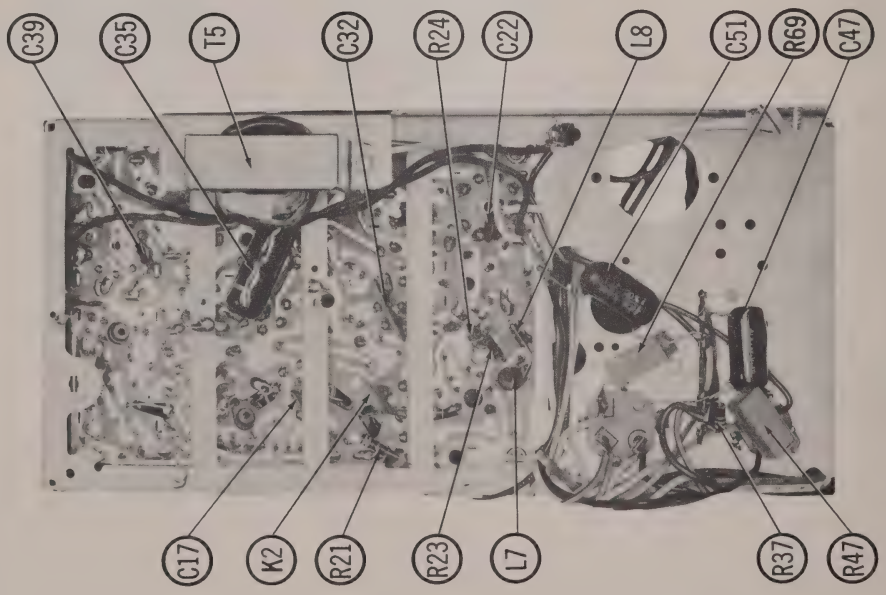
CTP9B REMOTE CONTROL RECEIVER ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CONNECT VTVM	ADJUST	REMARKS
1.	Use a CRK3B or E transmitter which has been checked for accuracy as a signal source. Place 4 feet from receiver.	20.375KC	DC probe thru 10meg to point Ⓑ. Common to chassis.	A16, A17	Depress "Channel" button and adjust A16 and A17 for maximum deflection.
2.	"	21.625KC	DC probe thru 10meg to point Ⓒ. Common to chassis.	A18	Depress "On-Volume Up" button and adjust A18 for maximum deflection.
3.	"	19.125KC	DC probe thru 10meg to point Ⓓ. Common to chassis.	A19	Depress "Off-Volume Down" button and adjust A19 for maximum deflection.

REMOTE CONTROL TRANSMITTER

CRK3F REMOTE CONTROL TRANSMITTER ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CONNECT SCOPE	ADJUST	REMARKS
1.	Use a separate CRK3B or E transmitter which has been checked for accuracy as a signal source. Remove small battery cover. Place Horizontal Amp. probe of scope 1 inch in front of transducer. Low side of scope to negative terminal of battery.	19.125KC	Vert. Amp. probe 1 inch in front of transducer. Low side to negative lead of battery. Keep transmitters about 2 feet apart.	A20	Depress "Off-Volume Down" button on both units and adjust A20 for zero beat on scope.
2.	"	20.375KC	"	A21	Depress "Channel" button on both units and adjust A21 for zero beat on scope.
3.	"	21.625KC	"	A22	Depress "On-Volume Up" button on both units and adjust A22 for zero beat on scope.



VIDEO, SOUND PRINTED BOARD SECTION
BOTTOM VIEW

4.5MC TRAP ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14.	High side thru .001mfd to TP-3. Low side to chassis.	4.5MC (400~ Mod.)	Any non-interfering channel	Vert. Amp. thru diode detector to pin 3 (cathode) of picture tube. Common to chassis.	A13	Adjust for MINIMUM deflection.

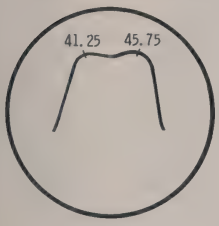


FIG.1

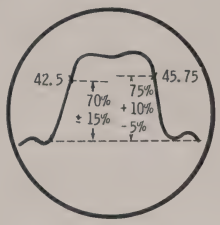


FIG.2

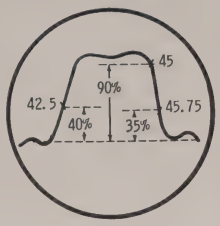


FIG.3

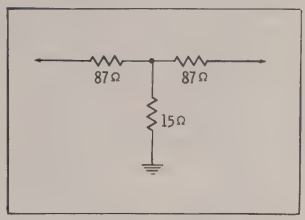


FIG. 4

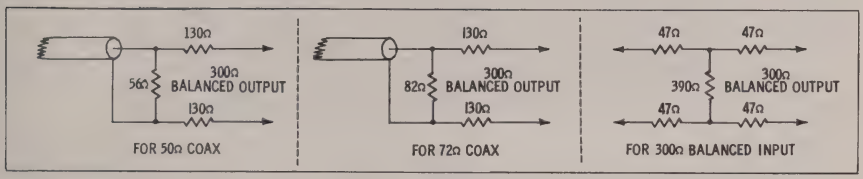


FIG. 5

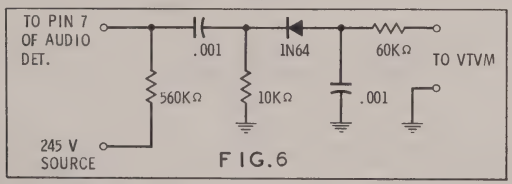
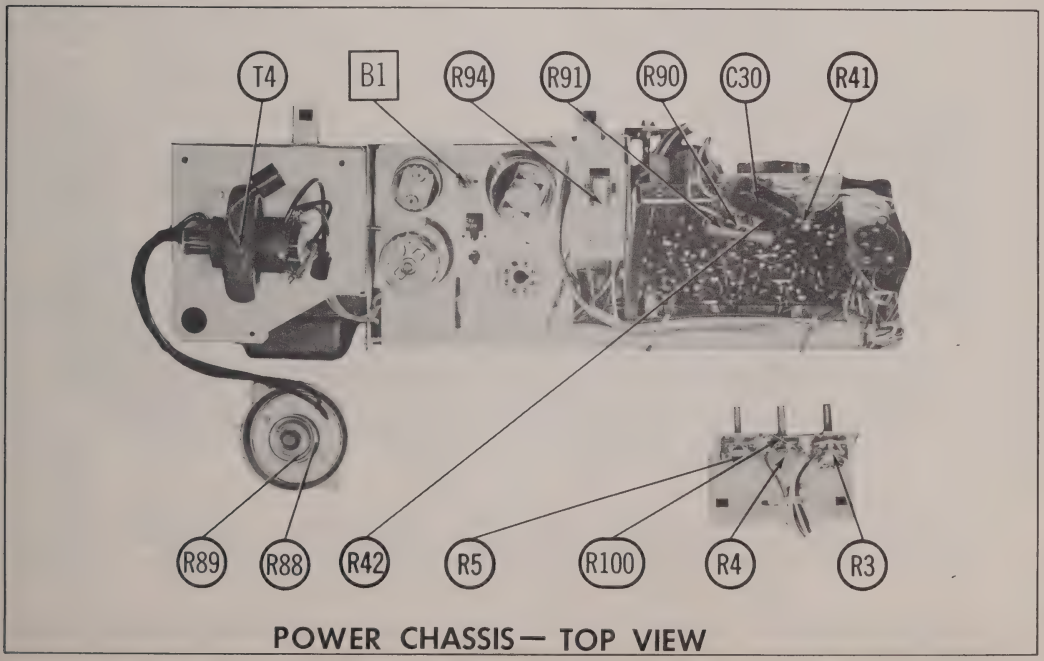
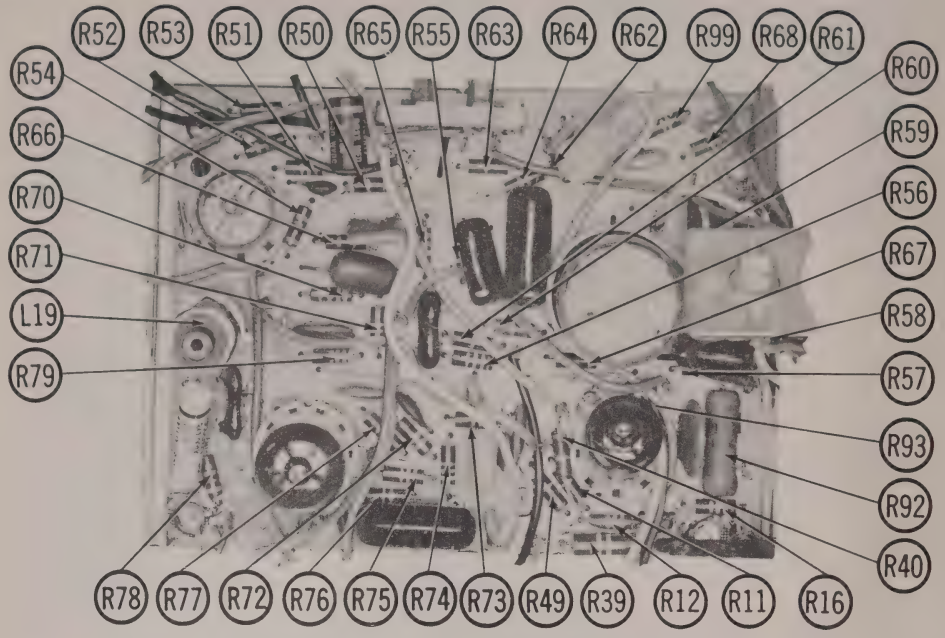


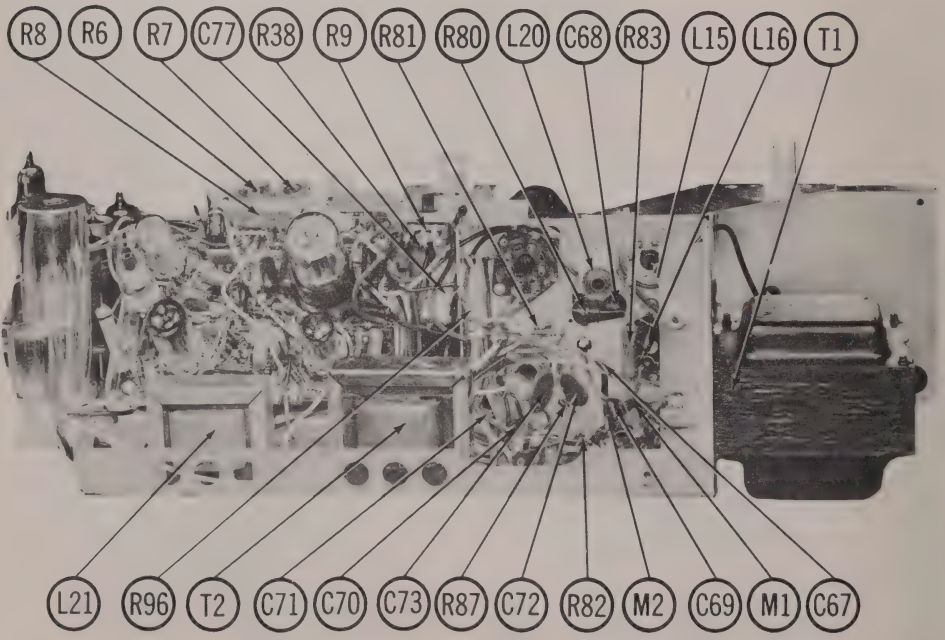
FIG.6



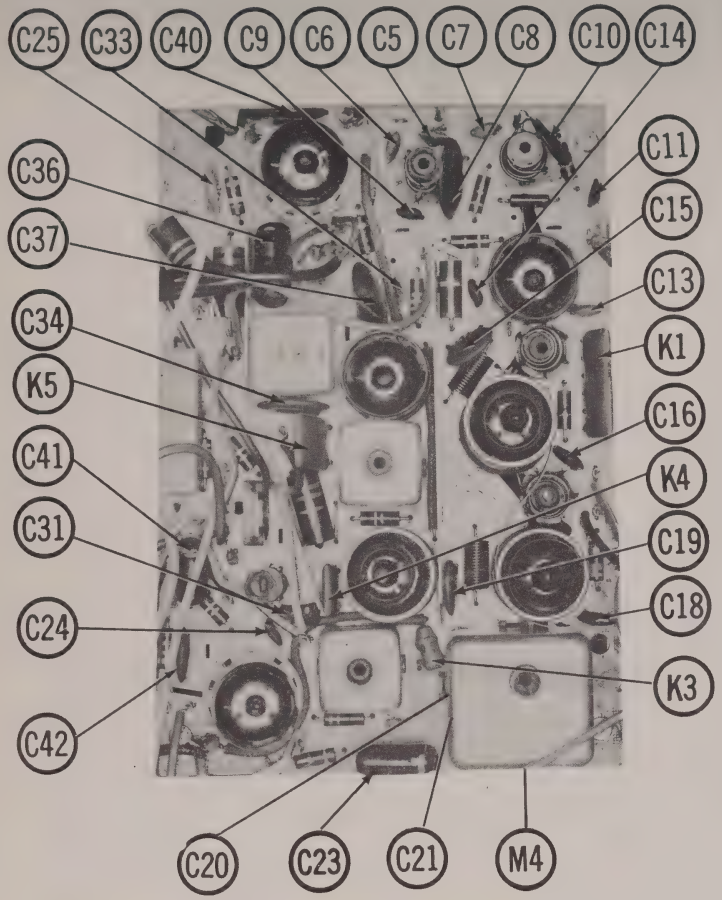
POWER CHASSIS— TOP VIEW



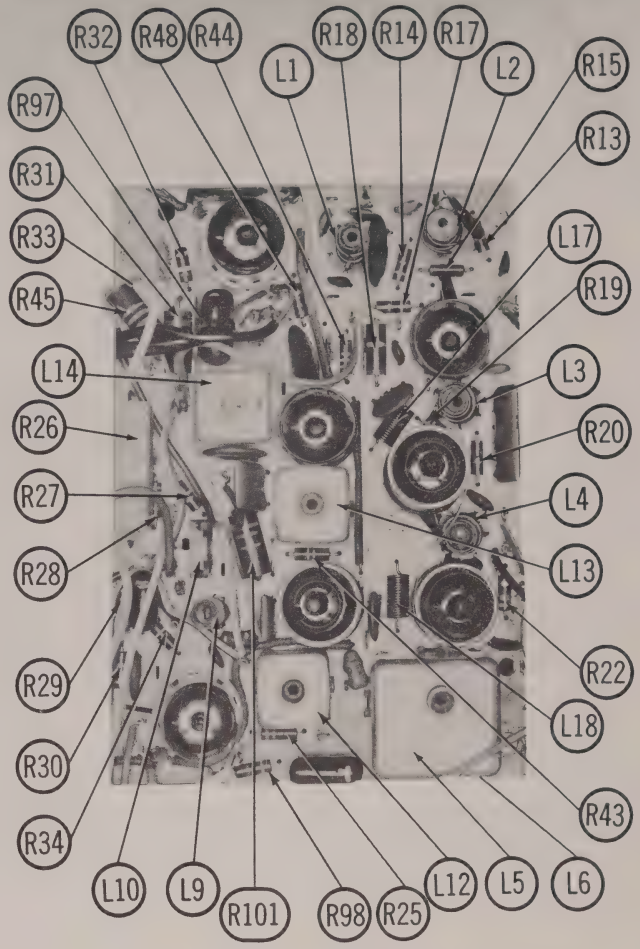
HORIZ. - VERT. OSC., AGC, SYNC PRINTED BOARD
RESISTOR & INDUCTOR IDENT.



POWER CHASSIS & HORIZ. - VERT. OSC., AGC, SYNC PRINTED BOARD



VIDEO, SOUND PRINTED BOARD
CAPACITOR & MISC. IDENT.



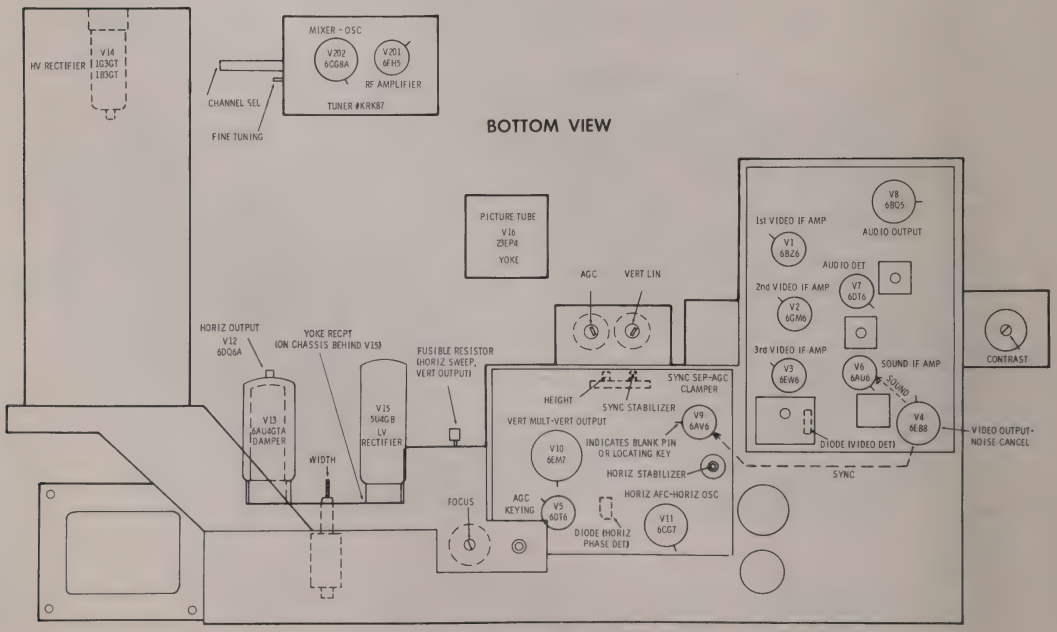
VIDEO, SOUND PRINTED BOARD
RESISTOR & INDUCTOR IDENT.

RESISTANCE MEASUREMENTS

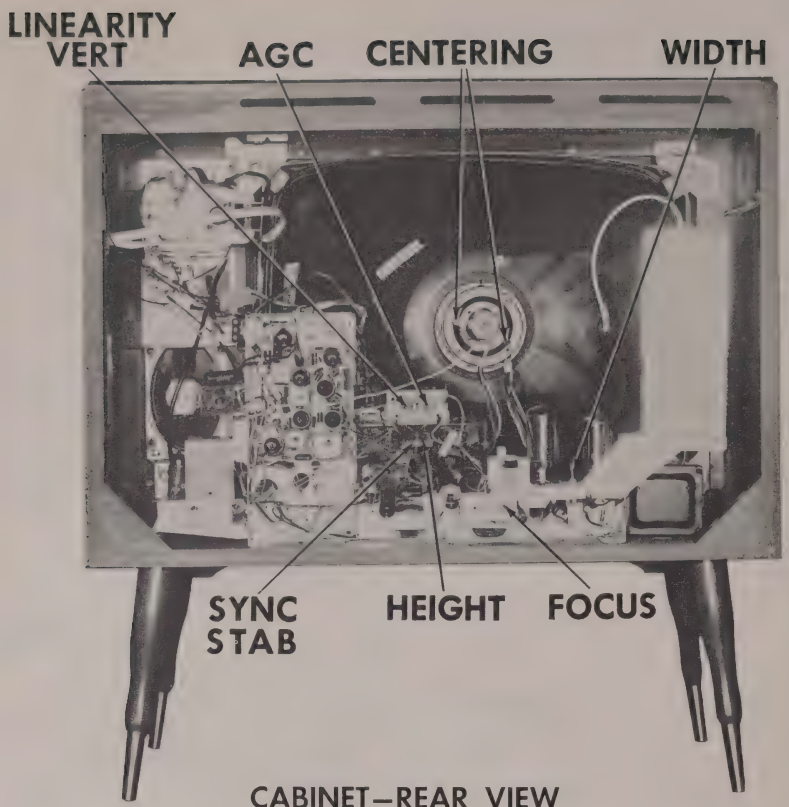
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	1.8meg	1250Ω	0Ω	.1Ω	▪230Ω	▪230Ω	1200Ω		
V2	6GM6	80K	95K	0Ω	.1Ω	†260Ω	†260Ω	95K		
V3	6EW6	.1Ω	150Ω	.1Ω	0Ω	†7000Ω	†7000Ω	150Ω		
V4	6EB8	680Ω	●1.1meg	†30K	.1Ω	0Ω	15Ω	4300Ω	†20K	†7400Ω
V5	6DT6	50K	●5500Ω	.1Ω	0Ω	2meg	†1800Ω	●185K		
V6	6AU6	47K	0Ω	.1Ω	0Ω	†27K	†27K	82Ω		
V7	6DT6	4.2Ω	560Ω	0Ω	.1Ω	† 560K	†33K	470K		
V8	6BQ5	NC	●0Ω	220Ω	0Ω	.1Ω	NC	†2600Ω	NC	†2200Ω
V9	6AV6	7.3meg	0Ω	0Ω	.1Ω	INF	2.7meg	†45K		
V10	6EM7	2.8meg	†300Ω	●500Ω	●800K	●†4meg	INF	0Ω	.1Ω	
V11	6CG7	†40Ω	1.5meg	2200Ω	0Ω	.1Ω	†80K	●90K	65Ω	0Ω
V12	6DQ6A	TP	0Ω	NC	†10K	1meg	NC	.1Ω	0Ω	TOP CAP †12Ω
V13	6AU4GTA	NC	NC	4meg	NC	†45Ω	NC	.1Ω	0Ω	
V14	1G3GT 1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †560Ω
V15	5U4GB	NC	¶15K	NC	27Ω	NC	29Ω	NC	¶15K	
V16	Z3EP4	NC	NC	●160K	.1Ω	0Ω	●500Ω	†70K	●†2.2meg	
V201	6FH5	47Ω	2.7meg	0Ω	.1Ω	†5700Ω	0Ω	47Ω		
V202	6CG8A	4700Ω	†10K	0Ω	0Ω	.1Ω	†5700Ω	†4700Ω	0Ω	220K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM PIN 2 OF V15.
† MEASURED FROM PIN 3 OF V13.
▪ MEASURED FROM PIN 2 OF V2.

NC NO CONNECTION
TP TIE POINT



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Suggested Alignment Tools:
GENERAL CEMENT #8282, 8606, 8606L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

CHECK OF THE HORIZONTAL OSCILLATOR ADJUSTMENT

Turn the Horizontal Hold fully clockwise. The picture should fall out of sync with approximately eight diagonal bars slanting down to the left. Turn the Hold counterclockwise slowly. The number of bars will gradually reduce and when only one and a half to three bars are obtained, the picture will pull into sync with only a slight additional counterclockwise turn of the Hold. Continue turning the Horizontal Hold counterclockwise until the picture falls out of sync. Rotation beyond fallout position should produce between 2 and 11 bars before interrupted oscillations (motorboat occurs). Interrupted oscillation should be reached before full counterclockwise rotation.

If the receiver passes this check and the picture is normal and stable, the Horizontal Oscillator is properly adjusted. Skip "Adjustment of Horizontal Oscillator".

ADJUSTMENT OF HORIZONTAL OSCILLATOR

If in the above check the receiver failed to hold sync over two thirds turn of counterclockwise rotation of the Horizontal Hold from pull-in point, it will be necessary to make the following adjustments.
The Width Slug (B1) should be properly adjusted before attempting to adjust the Horiz. Stabilizing Coil.
Connect a short jumper across the terminals of the Horiz. Stabilizing Coil (L19B) and short the grid (pin 2) of the 6CG7 (V11) to chassis with a small screw driver. Adjust the Horizontal Hold Control for an upright picture (may appear to float back and forth across the screen). Remove the jumper from across L19B and adjust B2 to again obtain a picture in an upright position. When B2 is properly adjusted, alternately shorting and removing short should not cause the picture to lose sync but instead cause a slight sideways shift of the picture. Remove the short from the grid of the 6CG7.

WIDTH ADJUSTMENT

Turn the set on and tune in a TV station, preferably with a test pattern. Adjust the Width Slug (B1) to fill the picture mask with a line voltage of 105 volts. With normal line voltage of 117 volts, adjust B1 for an overscan of approximately $\frac{1}{2}$ inch on each side of the screen. This adjustment should be made with the Brightness Control at normal level.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL MODEL 231DR656

1. Remove 6 wood screws holding rear cover. Remove rear cover.
2. Remove 6 push-on type knobs on front of set.
3. Remove channel selector cover.
4. Remove 4 nuts holding tuner assembly.
5. Remove 2 screws holding control panel.
6. Remove picture tube socket, yoke plug, high voltage lead, and speaker leads.
7. Remove 6 chassis bolts and one screw at side of cabinet.
8. Remove chassis and control panel.

PICTURE TUBE REMOVAL

It is necessary to remove the chassis for picture tube removal.

PHOTOFACT® Folder

TRUETONE
MODEL 2DC1928A

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

TRUETONE
MODEL 2DC1928A

MODEL 2DC1928A

TRUETONE
MODEL 2DC1928A

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TRUETONE MODEL 2DC1928A

MODEL 2DC1928A

CAUTION

ONE SIDE OF AC LINE CONNECTED TO CHASSIS.

Care should be exercised when connecting test equipment or physically contacting chassis. Isolation devices employed by manufacturer should be checked and properly connected before returning receiver to owner.

TRADE NAME	Truetone, Model 2DC1928A
SUPPLIER	Western Auto Supply Co., 2107 Grande Avenue, Kansas City 8, Mo.
TYPE SET	Television Receiver
TUBES	VHF - Sixteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 130 Watts, 1.2 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

It is necessary to remove the chassis and picture tube for safety glass cleaning and removal.

FUSE DEVICE

A 5.6Ω fusible resistor is used for low voltage power supply protection. (For location, see "Tube Placement Chart".)

TUNER OSCILLATOR ADJUSTMENT

The VHF Oscillator adjustments are accessible thru hole in rear cover.

AGC

The AGC may be varied by means of an AGC Control. (For location, see "Tube Placement Chart".)

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The Horizontal Frequency Slug is used for the Horizontal Hold. (For location, see "Tube Placement Chart".)

WIDTH

The width may be varied by adjusting a metallic sleeve, located between the yoke and the picture tube neck, in or out of the yoke.

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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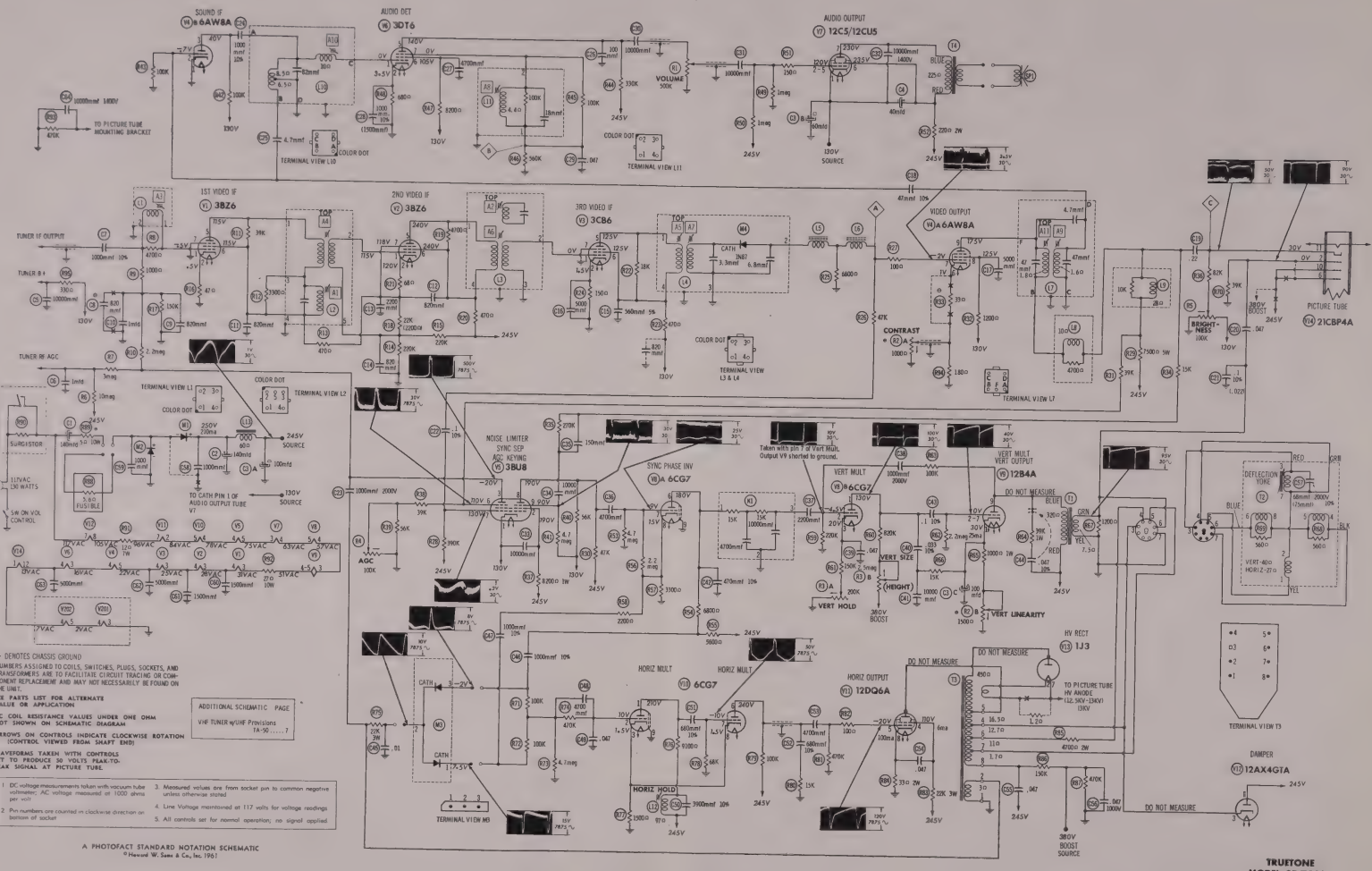
KA543



⏚ DENOTES CHASSIS GROUND

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt
2. Pin numbers are counted in clockwise direction on bottom of socket
3. Measured values are from socket pin to common negative unless otherwise stated
4. Line Voltage maintained at 117 volts for voltage readings
5. All controls set for normal operation; no signal applied

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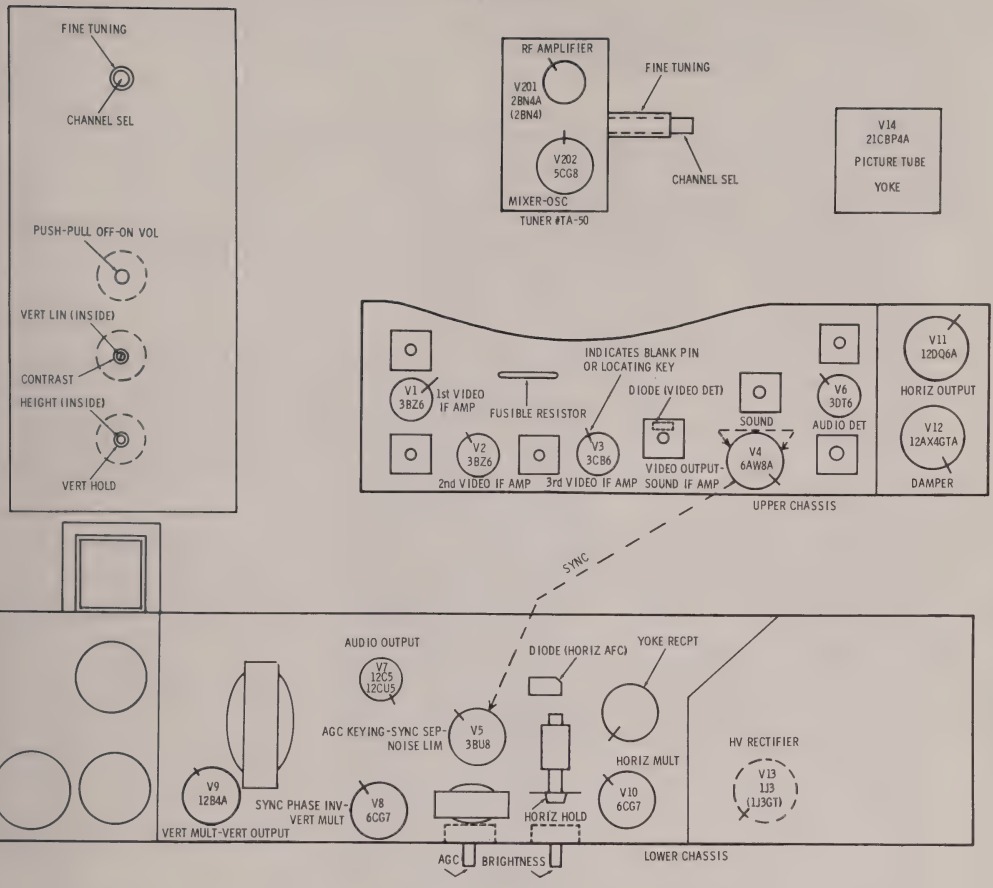
TRUETONE
MODEL 2DC1928A

TUBE PLACEMENT CHART

TOP VIEW



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

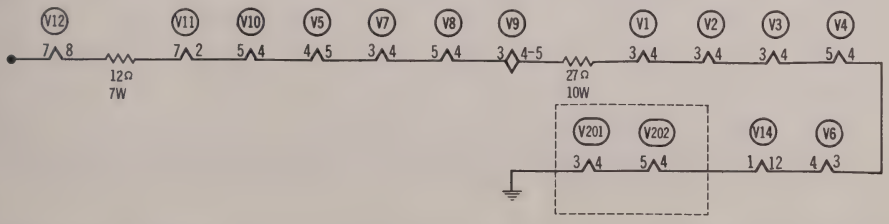
POWER SUPPLY FAILURE
No raster, no sound Fusible Res., Rectifiers (B+)

SWEEP FAILURE
No raster, has sound V10, V11, V12, V13, V14
No vertical deflection V8, V9
Poor vert. linearity or foldover V8, V9
Poor horiz. linearity or foldover V10, V11, V12
Narrow picture V10, V11, V12, Rectifier (B+)
Vert. off freq. V8, V9
Horiz. off freq. Diode (Horiz. AFC), V10

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V14
Has pic, no sound V4, V6, V7
Overloaded picture V5

SYNC FAILURE
No vert. sync V5, V8
No horiz. sync V5, V8
No vert. or horiz. sync V5, V8

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)



SET 522 FOLDER 2

TRUETONE
MODEL 2DC1928A

FOLDER 2

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER TO PROTECT the Test Equipment.
The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8606L, 9295
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Set Contrast fully clockwise.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	Place a thin insulated metal strip between the Mixer-Osc. tube (V202), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	44MC (10MC Swp)	41.25MC	Any non-interfering channel	Vert. Amp. thru 47K to point (A). Low side to chassis. (Across Video Det. load)	A1	Adjust to place marker in 41.25MC trap notch. (See Fig. 1).
2.	"	"	"	47.25MC	"	"	A2	Adjust to place marker in other trap notch.
3.	"	"	"	42.75MC 45.75MC	"	"	Mixer Plate Coil & A3 thru A7	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Adjust Mixer Plate Coil and A3 for maximum gain. A4 and A5 to shape high frequency side of response curve. A6 and A7 is adjusted to shape low frequency side.

SOUND IF ALIGNMENT

Connect an output meter across speaker voice coil.
Connect the DC probe of the VTVM to point (B). Common to chassis. Tune in a strong air signal and adjust A8 for maximum output. If two peaks occur during this adjustment, use the one resulting in the highest reading on the VTVM.
Reduce the signal strength by disconnecting the antenna. Adjust A9 and A10 for maximum undistorted sound. Further reduce the signal by moving the antenna lead further away. Retouch A9 and A10 for maximum undistorted sound. Repeat entire procedure if necessary.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	.05mfd	High side to point (A). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	AC probe to point (C). Common to chassis. (Use 0-10VAC scale).	All	Adjust for MINIMUM deflection.

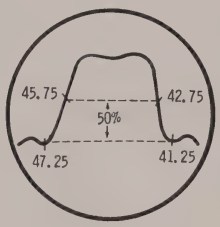
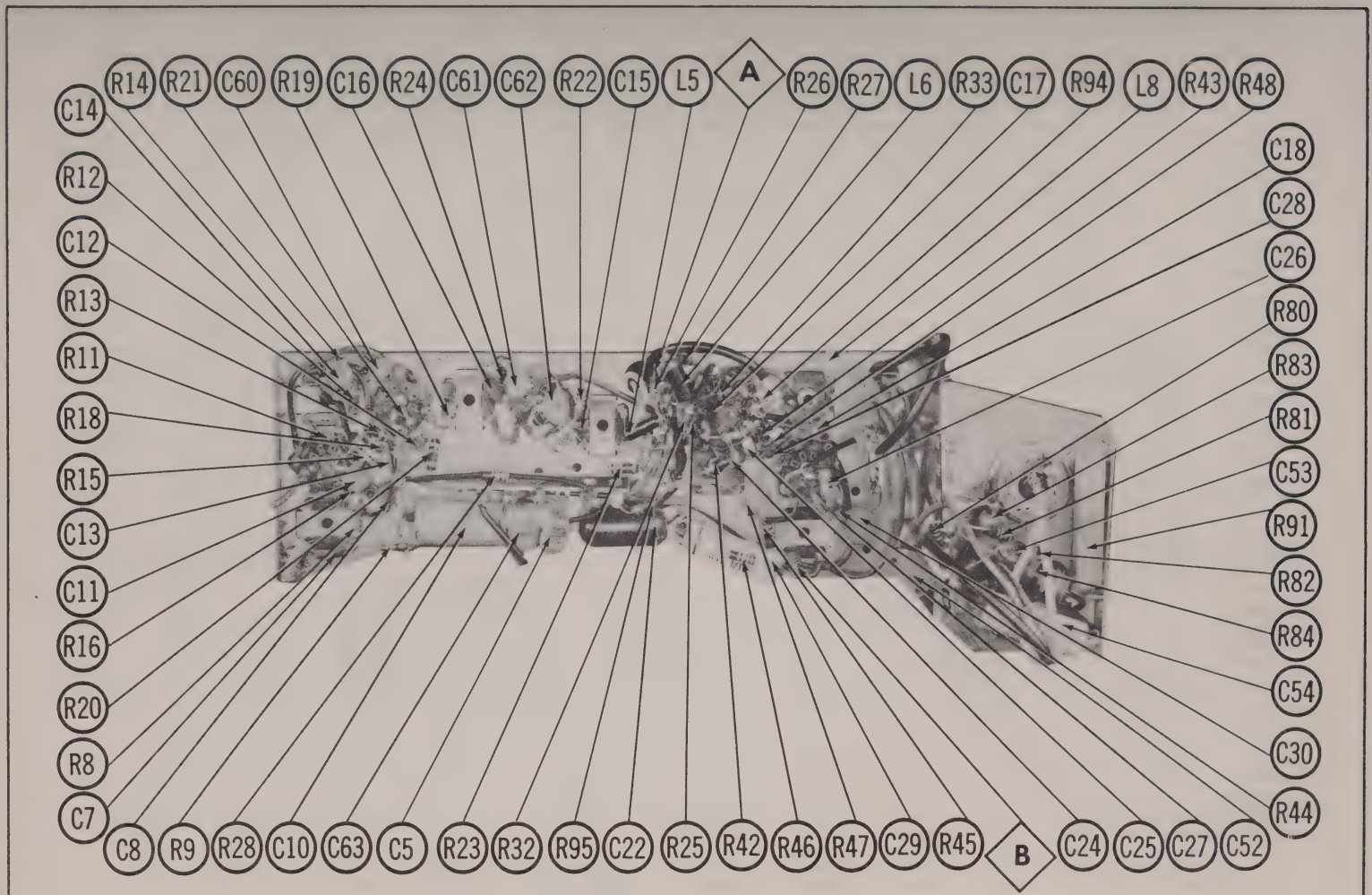
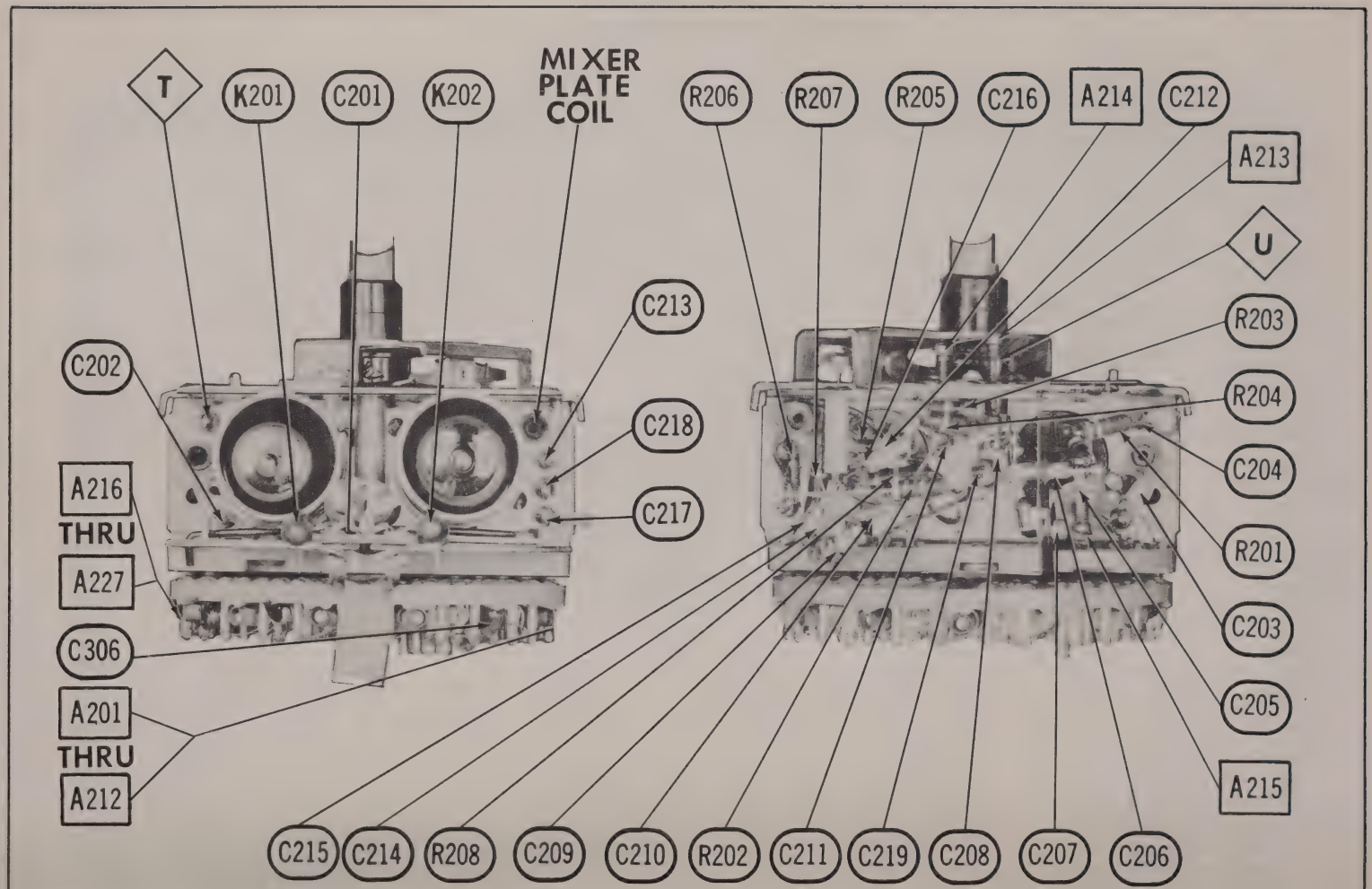


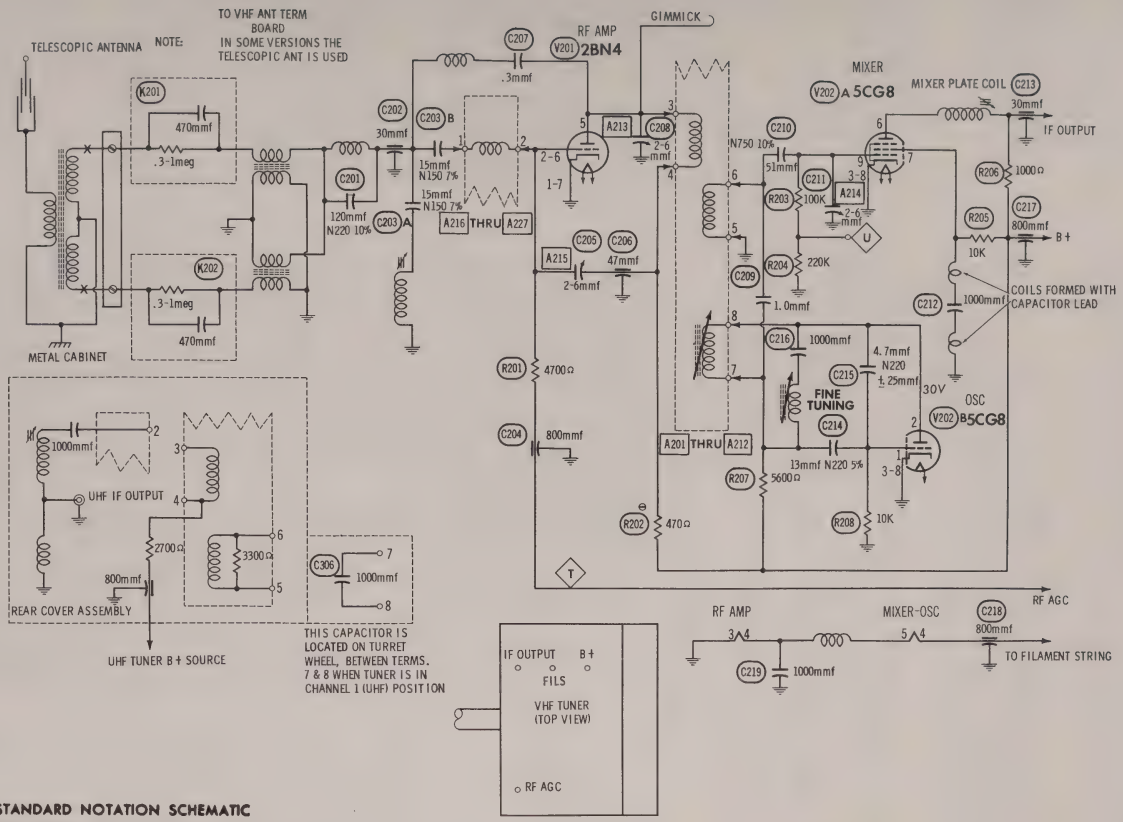
FIG 1



UPPER CHASSIS - BOTTOM VIEW



VHF TUNER with UHF Provisions TA-50



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VHF TUNER with UHF Provisions TA-50

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
	• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •				
V1	1st Video IF Amp.	3BZ6	V7	Audio Output	13C8/12CU5
V2	2nd Video IF Amp.	3BZ6	V8	Sync Phase Inv. - Vert. Mult.	6CG7
V3	3rd Video IF Amp.	3CB6	V9	Vert.Mult.- Vert. Output	12B4A
V4	Video Output - Sound IF Amp.	6AW8A	V10	Horiz. Mult.	6CG7
V5	AGC Keying - Sync Sep. - Noise Limiter	3BU8	V11	Horiz. Output	12DQ8A
V6	Audio Det.	3DT6	V12	Damper	1AX4GTA
			V13	HV Rectifier	1J3 (1J3GT) *

* Alternate

PICTURE TUBE

ITEM No.	REPLACEMENT DATA					NOTES
	TRUETONE PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
V14	21CBP4A	21CBP4A ①	21CBP4-A ①	21CBP4/21CBP4A ①	21CBP4/21CBP4A ②	① Aluminized ② Silver Screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	TRUETONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	140	200	EC-64	AFHR-37-25	XA0266	FP140.5	TM2-1480	TVL-1540	
C2	140	300	EC-119	AFHR-37-25	XA0355	FP140.5	TM2-1570	TVL-1584	
C3A	100	300	EC-130	AFHB4-100-3C	D0769.4	FP330.38	TMQ-4451	TVL-4711	
B	60	300							
C	100	50							
C4	40	200	EC-113	PRR590	BR4035	TC58		TD-40-350	TVA-1511

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REMARKS	REPLACEMENT DATA						
				AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	10000			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C6	1mfd	100V		PSBIN-1.0		CUB2W1	1DP-5-105	GRM-2	2TM-M1	
C7	1000	10%		DI-100	DD-102	5RS1N	CCD-102	GP310	10TS-D10	
C8	820		Note 1	DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82	
C9	820			DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82	
C10	1mfd	100V		PSBIN-1.0		CUB2W1	1DP-5-105	GEM-2	2TM-M1	
C11	820			DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82	
C12	820			DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82	
C13	2200			BPD-0022	DD-222	BYA10D22	CCD-222	B-222	5HK-D22	
C14	820			DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82	
C15	560	5%				5HT56	CM-19S-561J	MC1247	M5-356	
C16	5000			BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50	
C17	5000			BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50	
C18	47	10%		SI 47	D6-470	L10Q47	CC-470	GP447	10TS-Q47	
C19	.22	400V		PX68N-22		CUB4P22	4DP-5-224	GEM-4032	4TM-P22	
C20	.047	600V		P668N-047	DD-503	CUB5S47	5DP-3-473	GEM-6147	5TM-S47	
C21	.1	600V 10%	† (.022)	V84C6P1-10%		PM6P1	6DP-4-104	GEM-1001	6TM-P10	
C22	.1	600V 10%		V84C6P1-10%		PM6P1	6DP-4-104	GEM-1001	6TM-P10	
C23	1000	2000V		HVD-30-1000	DD30-102	HVD30D1	3CCD-102	3HV210	BL-D10	
C24	1000	10%		DI-1000	DD-102	5RS1N	CCD-102	GP310	10TS-D10	
C25	4.7	10%		NPO-SI 4.7	TC2-4R7	C10V47C	CCD-4R7	CNO-547	10TCC-Y47	
C26	100			SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10	
C27	4700			BPD-0047	DD-472	BYA10D47M	CCD-472	B-347	5HK-D47	
C28	1000	10%	† (1500)	DI-1000	DD-102	5RS1N	CCD-102	GP310	10TS-D10	
C29	.047	200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	4TM-S47	
C30	10000			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C31	10000			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C32	10000	1400V		DAC-37	DDK6-103	HVE16S1	16DP-3-103	UAC-110	BL-S10	
C33	10000			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C34	10000			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C35	150			DI-150	DD-151	L10T15	CCD-151	B-315	10TS-T15	
C36	4700			BPD-0047	DD-472	BYA10D47M	CCD-472	B-347	5HK-D47	
C37	2200			BPD-0022	DD-222	BYA10D22	CCD-222	B-222	5HK-D22	
C38	1000	2000V		HVD-30-1000	DD30-102	HVD30D1	3CCD-102	3HV-210	BL-D10	
C39	.047	600V		P668N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47	
C40	.033	600V 10%		V84C6833-10%		PM6S33	6DP-3-333	GEM-1613	6TM-S33	
C41	1000			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C42	470	10%		DI-470	DD-471	5RS74	CCD-471	GP347	10TS-T47	
C43	.1	600V 10%		V84C6P1-10%		PM6P1	6DP-4-104	GEM-1001	6TM-P10	
C44	.047	600V 10%		V84C6847-10%		PM6S47	6DP-3-473	GEM-1615	6TM-S47	
C45	.01	600V		P668N-047	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S10	
C46	1000	10%		DI-1000	DD-102	5RS1N	CCD-102	GP310	10TS-D10	
C47	1000	10%		DI-1000	DD-102	5RS1N	CCD-102	GP310	10TS-D10	
C48	4700			BPD-0047	DD-472	BYA10D47M	CCD-472	B-347	5HK-D47	
C49	.047	600V		P668N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47	
C50	3900	10%		1464-0039		1RS539	CM-30B-392J	MC1462.5	M5-329	
C51	680	10%		1469-00068		5RS768	CM-19S-681K	MCJ349	M5-368	
C52	680	10%		1469-00068		5RS768	CM-19S-681K	MCJ349	M5-368	
C53	4700			BPD-0047	DD-472	BYA10D47M	CCD-472	B-347	5HK-D47	
C54	.047	600V		P668N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47	
C55	.047	1000V		P1088N-047		CUB10S47	10DP-5-473	GEM-10147	10TM-S47	
C56	.047	1000V		P1088N-047		CUB10S47	10DP-5-473	GEM-10147	10TM-S47	
C57	68	2000V 10%	† (75)			HVA20G68	VCM-20-680K	2DY-468		
C58	1000			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C59	1000			BPD-001	DD-102	BYA10D1	CCD-103	B-210	5HK-D10	
C60	1500			BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15	
C61	1500			BPD-0015	DD-152	BYA10D15	CCD-153	B-215	5HK-D15	
C62	5000			BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50	
C63	5000			BPD-005	DD-502	BYA10D5	CCD-503	B-250	5HK-D50	
C64	10000	1400V		DAC-27	DDK6-103	HVE16S1	16DP-3-103	UAC-110	BL-S10	

Note 1. May not be used in some versions. † Alternate Value.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	TRUETONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	500K	½	VC-130	BPL-50	C47-500K-Z	B-13-133 *	PP55A	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			Not Req.	Not Req.	BK7 *	Not Req.	Push-Pull Off-On
R2A	1000Ω	½	VC-196A	F1-5		(QU-1518	(UE4191	Contrast Note 1
B	1500Ω	½		R2-5				Vert. Linearity
R3A	200K	½	VC-194A	F1-33		(QU-1130	(UE4121	Vert. Hold
B	2.5meg	½		R2-76				Vert. Size (Height)
R4A	100K	½	VC-84	TT-40	B47-100K-S	B11-128	PTA15L	AGC
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	
R5A	100K	½	VC-84	TT-40	B47-100K-S	B11-128	PTA15L	Brightness
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	

† "CONCENTRIKIT" Equivalent: K-15 Kit with Base Elements and Shafts: B17-108, P17-038 (Panel) B11-105, R15-005 (Rear)

‡ "CONCENTRIKIT" Equivalent: K-15 Kit with Base Elements and Shafts: B11-129, P17-038 (Panel) (Not available as a factory assembled unit). B11-239, R15-005 (Rear)

■ "FTA-LOC" Equivalent: FA18R, RU151L, C08775A, IK525.

▲ "FTA-LOC" Equivalent: FA35L, RU255L, C08775A, IS437.

* Factory Assembled Part #PPQ3-133 (SRC)

Note 1. Some versions may use 1000Ω contrast, 5K Vert. Linearity (Pt. #VC-195).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R6	10meg				R51	150Ω			
R7	3.0meg				R52	220Ω 2W			
R8	4700Ω				R53	4.7meg			
R9	1000Ω				R54	680Ω			
R10	2.2meg				R55	5600Ω			
R11	39K				R56	2.2meg			
R12	3300Ω				R57	3300Ω			
R13	470Ω				R58	2200Ω			
R14	220K				R59	220K			
R15	220K				R60	820K			
R16	150K				R61	150K			
R17	150K				R62	2.2meg			
R18	33K			* (2200Ω)	R63	100K			
R19	4700Ω				R64	39K 1W			
R20	470Ω				R65	1000Ω 1W			
R21	68Ω				R66	15K			
R22	18K				R67	1200Ω			
R23	470Ω				R68	580Ω			
R24	150Ω				R69	560Ω			
R25	6800Ω				R70	39K			
R26	47K				R71	100K			
R27	100K				R72	100K			
R28	390K				R73	4.7meg			
R29	7500Ω 5W	PW5-7500	5W 8Ω 7500Ω		R74	470K			
R30	47K				R75	22K 5W	PW5-22K	3G-22K	#1R-276
R31	39K				R76	9100Ω			
R32	1200Ω				R77	1500Ω			
R33	330			Note 1	R78	68K			
R34	15K				R79	100K			
R35	270K				R80	15K			
R36	82K				R81	470K			
R37	8200Ω 1W				R82	100Ω			
R38	39K				R83	22K 5W	PW5-22K	3G-22K	#1R-276
R39	56K				R84	33Ω 2W			
R40	56K				R85	4700Ω 2W			
R41	4.7meg				R86	150K			
R42	100K				R87	470K			
R43	100K				R88	5.6Ω †	FR 5.6	FZ 5.6	#Y-6-1
R44	330K				R89	5Ω 10W	PW10-5Ω	5W 8Ω 10Ω SRO	Note 2 #7-9
R45	100K				R90				#WR-34
R46	560K				R91	12Ω 7W	PW10-12Ω	7W 8Ω 12Ω	#WR-34
R47	8200Ω				R92	27Ω 10W	PW10-27Ω	10W 8Ω 27Ω	#WR-26
R48	680Ω				R93	470K			
R49	1meg				R94	100Ω			
R50	1meg				R95	330Ω			

Truetone Part Number.
* Alternate Value.
† Fusible Type.

Note 1. May not be used in some versions.
Note 2. Some versions may use 33Ω 2W (Part #1R-38).

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	TRUETONE PART No.	REPLACEMENT DATA
E1	Vert. Integrator	4700mmf, 10000mmf, 15K, 15K	CC-120	Centralab PC-392

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		TRUETONE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	1st Video IF	L-150					①Includes Complete Assy. ②Wound on 4700Ω Res. ③Wound on 10K Resistor. ④Includes 18mmf Cap. & 100K Resistor *Shunt with 100K Resistor.
L2A	2nd Video IF	L-103					
B	4.5MC Trap						
L3A	3rd Video IF	L-165	TV-128	6233	RTC-8561	T210	
B	47.25MC Trap						
L4	4th Video IF	L-152 ①					
L5	RF Choke (10uh)	L-160	BC-566	4612	RTC-8522	T260	
L6	RF Choke (27uh)	L-158	TV-192	4515	RTC-8525	T263	
L7A	4.5MC Trap	L-154		1482 IFT	RTC-9056	T253	
B	1st Sound IF						
L8	Peaking	L-162 ②					
L9	Peaking	L-163 ③					
L10	2nd Sound IF	L-167					
L11	Quadrature	L-110A④	TV-154 *	1481 *	RTC-8606 *	T248 *	

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							
		TRUETONE PART No.	Merit PART No.	Miller PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	Workman TV PART No.
L12	Horiz. Stabilizer	L-156	TV-163	6210	RC110	RTC-8622	HS-8	WLC-25	T103

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT (1000 ~)	TRUETONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
L13	.210A	60Ω	85 Hy.	FC-5A	C-2996 ①	C-2343	26C93 ①	C-24X	① Drill new mounting hole(s).

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							NOTES
		TRUETONE PART No.	Merit PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.		
T1	Vert. Output	TR-26C	A-2523	VO-34	A-8143	26S53	A-108X		
T2	Yoke (Horiz. 19.5MH)	L-118D	MDF-92 ① ②	PCM2045 ① ②	DY-16A ① ②	Y-16 ① ②	Y-41 & NW3		
	90° (Vert. 38.5MH)								
	Rear Cover and Centering Device	MP-77							
	Width Device	IM-299							
T3	Horiz. Output	TR-53A	HVO-54 *	EFR-172 *	A-8255 *	FLY-76 *	D-151R *		

① Use original rear cover and centering device. Use original horiz. damping network if necessary.
② Add Fifth Lead and connect same as original.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

	ORIGINAL TERMINAL CONNECTIONS	Merit Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	5	5	5	5	5	5
	4	4	4	4	4	6
	6	N.C. See Note ③	N.C. See Note ③	N.C. See Note ③	N.C. See Note ③	3
	7	2	2	2	2	7
	8	1	1	1	1	8
	2	7	7	7	7	2
	1	8	8	8	8	1
Special Notes →		④	④	④	④	

② Remove R85, Capacitor C57, and Yoke Center Tap Lead from circuit; requires new damping network consisting of 150Ω, ½ watt Resistor and 82mmf ④ 2KV Capacitor connected in series. Install Damping Network across Horizontal Yoke Terminal #3 and #7.
④ Remove one turn from filament winding.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA				NOTES
	PRI.	SEC.	TRUETONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T4	2700Ω	3-4Ω	AT-52	A-3025	A-3332	26S53	S-12X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	TRUETONE PART No.	QUAM PART No.	
SP1	5"	P.M	3-4Ω	SPK-36	5A07	

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	TRUETONE PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.210A	SR-14 *	1N1763 *	40H *	SR500 *	* Silicon Type
M2	.210A	SR-14 *	1N1763 *	40H *	SR500 *	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		TRUETONE PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M3		SR-15	6GD1			Horiz.-AFC, Dual Selenium Diode, Series Connected
M4	1N87	SC-23		1N87	1N87	Video Detector

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M5	Tuner	TA-50	VHF with UHF Provisions

PARTS LIST AND DESCRIPTIONS (Continued)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	DW-86C	
Mask	MP-115	
Knob	K-335A	Channel Selector
Knob	K-201M1	Fine Tuning
Knob	K-352M	Contrast and Vertical Hold
Knob	K-353M	Volume
Cabinet	CA-368	
Leg	CH-110	Cabinet

WIRING DATA

High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

TUNER PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	GENERAL ELECTRIC • RAYTHEON • SYLVANIA • TYPE
V201	RF Amplifier	2BN4
V202	Mixer - Osc.	5CG8

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	120 N220 10%					*		10TCR-T12
C202	30							
C203A	15 N150 7%					*		10TCP-Q15
B	15 N150 7%					*		10TCP-Q15
C204	800		EF-001	MFT-1000		CCF-102		
C205	2-6			829-6		VC-3	CT552	
C206	47		EF-000050	MFT-50				
C207	.3							
C208	2-6			829-6		VC-3	CT552	
C209	1		NPO-SI 1.0	TCZ-1			CNO-510	10TCC-V10
C210	51 N750 10%		N750-DI 47	TCN-51	C10Q51U	CCTN-470	CN7-447	10TCU-Q47
C211	2-6			829-6		VC-3	CT552	
C212	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C213	30							
C214	13 N220 5%					*		
C215	4.7 N220 ±.25mmf					*		
C216	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C217	800		EF-001	MFT-1000		CCF-102	CT280A	
C218	800		EF-001	MFT-1000		CCF-102	CT280A	
C219	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	10TS-D10

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R201	4700Ω			Note 1	R205	10K			
R202	470Ω				R206	1000Ω			
R203	100K				R207	5600Ω			
R204	220K				R208	10K			

Note 1. Some versions may use 1000Ω in this application.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PART No.	REPLACEMENT DATA
K201	Antenna Isolation	470mmf, .3-1meg		Centralab RC-471 Sprague AC1-1
K202	Antenna Isolation	470mmf, .3-1meg		Centralab RC-471 Sprague AC1-1

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201 thru A212 ..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531
A213, A214, A215..... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2525

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Set the Fine Tuning to the center of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K across Video Det. load.	A201	Adjust to place sound marker in trap notch as in Fig. 201. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A202	
			201MC	199.25MC 203.75MC	11		A203	
			195MC	193.25MC 197.75MC	10		A204	
			189MC	187.25MC 191.75MC	9		A205	
			183MC	181.25MC 185.75MC	8		A206	
			177MC	175.25MC 179.75MC	7		A207	
			85MC	83.25MC 87.75MC	6		A208	
			79MC	77.25MC 81.75MC	5		A209	
			69MC	67.25MC 71.75MC	4		A210	
			63MC	61.25MC 65.75MC	3		A211	
			57MC	55.25MC 59.75MC	2		A212	

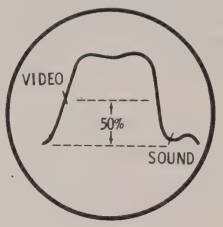


FIG. 201

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Connect the negative lead of a 4.5 volt bias supply to point (T). Positive to chassis.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
2.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point (D). Low side to chassis.	A213, A214, A215	Adjust A213 and A214 for maximum amplitude and symmetry with markers as shown in Fig. 202. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A215 to obtain MINIMUM response on the scope. Restore bias.
3.	"	"	213MC	211.25MC 215.75MC	13	"	A216	Adjust for maximum amplitude of response similar to Fig. 202. Adjust by compressing or expanding coil turns.
			207MC	205.25MC 209.75MC	12		A217	
			201MC	199.25MC 203.75MC	11		A218	
			195MC	193.25MC 197.75MC	10		A219	
			189MC	187.25MC 191.75MC	9		A220	
			183MC	181.25MC 185.75MC	8		A221	
			177MC	175.25MC 179.75MC	7		A222	
			85MC	83.25MC 87.75MC	6		A223	
			79MC	77.25MC 81.75MC	5		A224	
			69MC	67.25MC 71.75MC	4		A225	
			63MC	61.25MC 65.75MC	3		A226	
			57MC	55.25MC 59.75MC	2		A227	

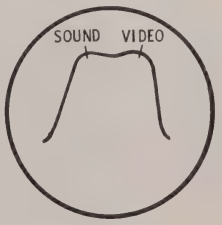
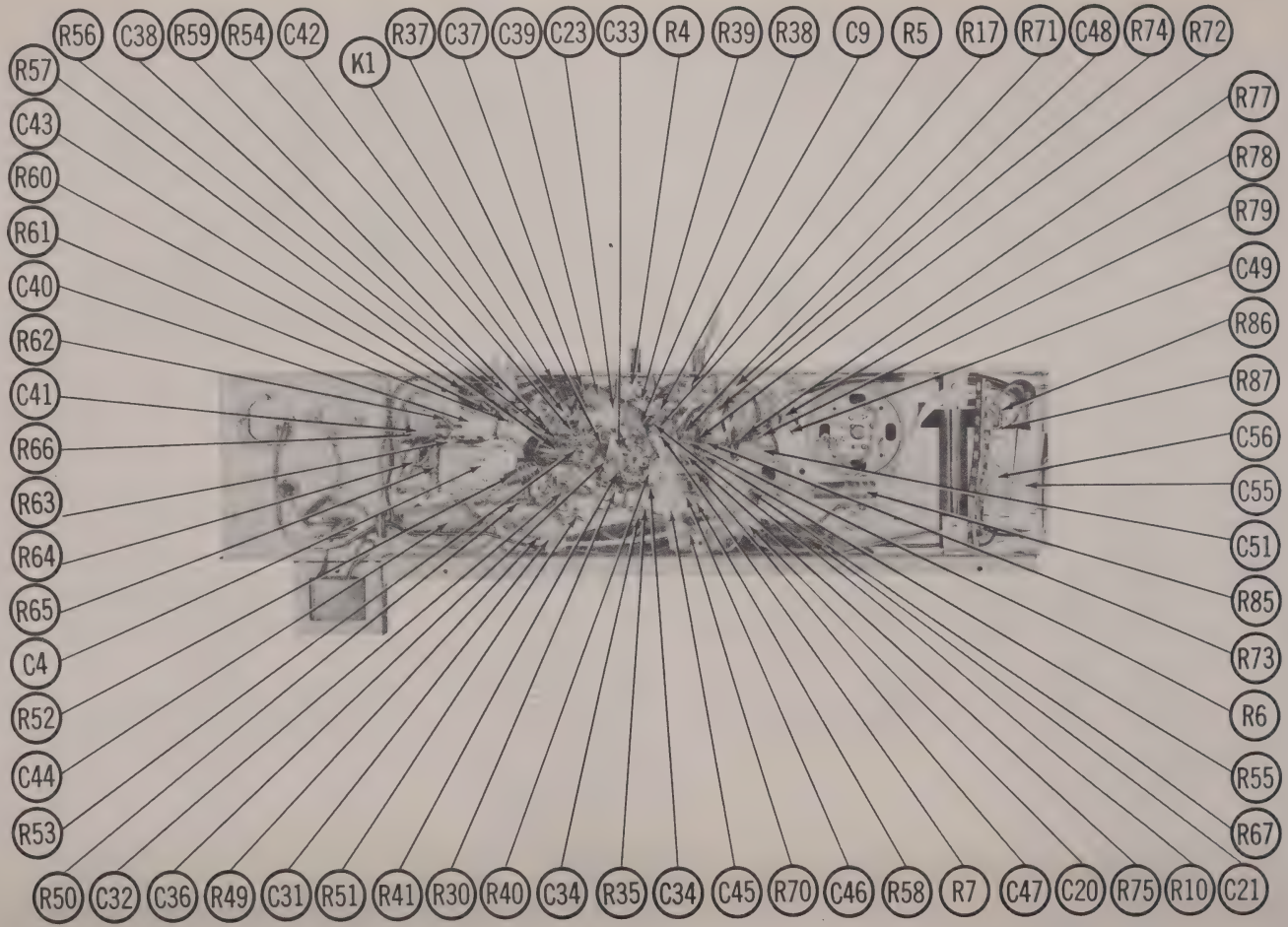
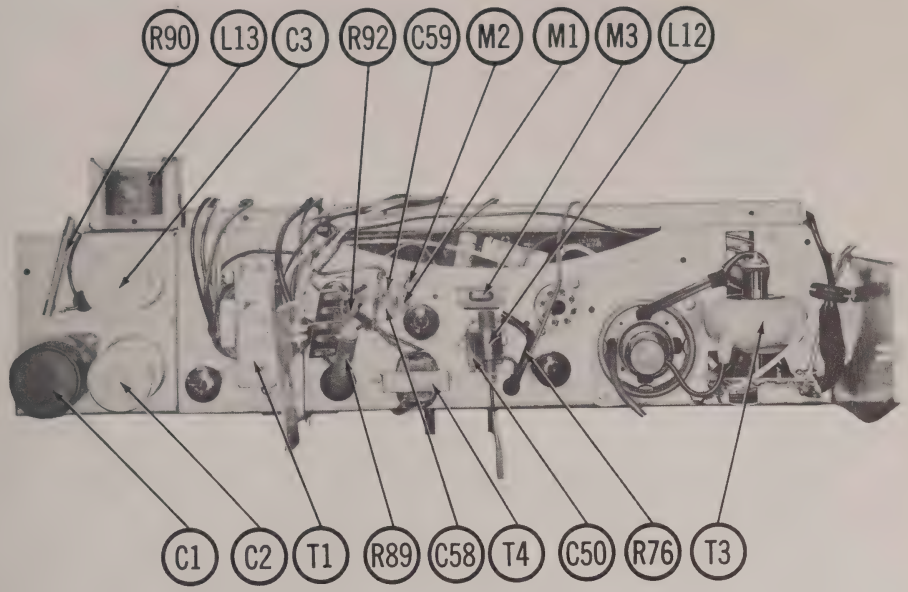


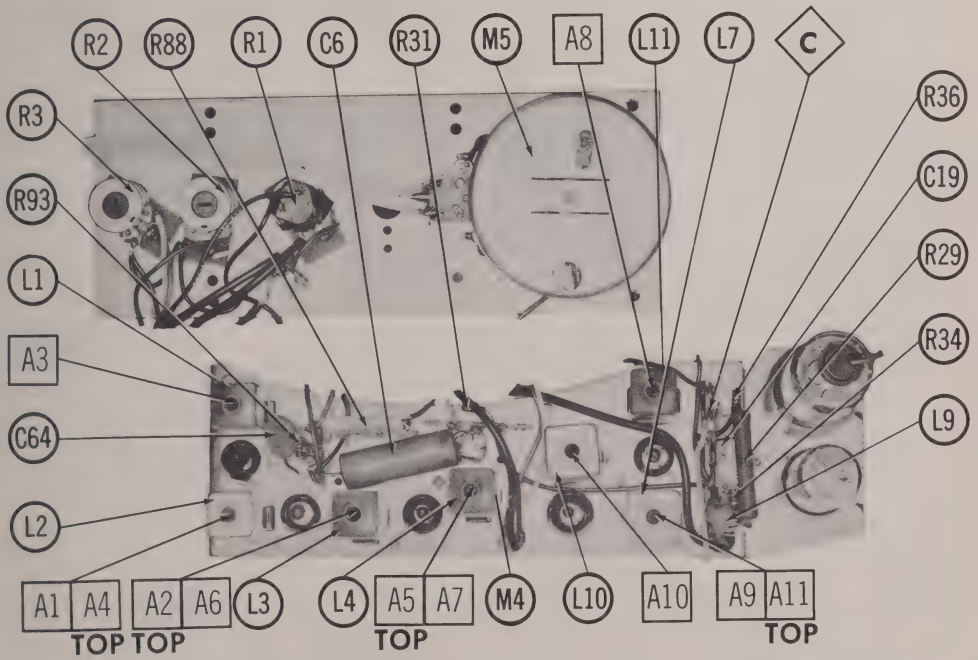
FIG. 202



LOWER CHASSIS - BOTTOM VIEW



LOWER CHASSIS - TOP VIEW

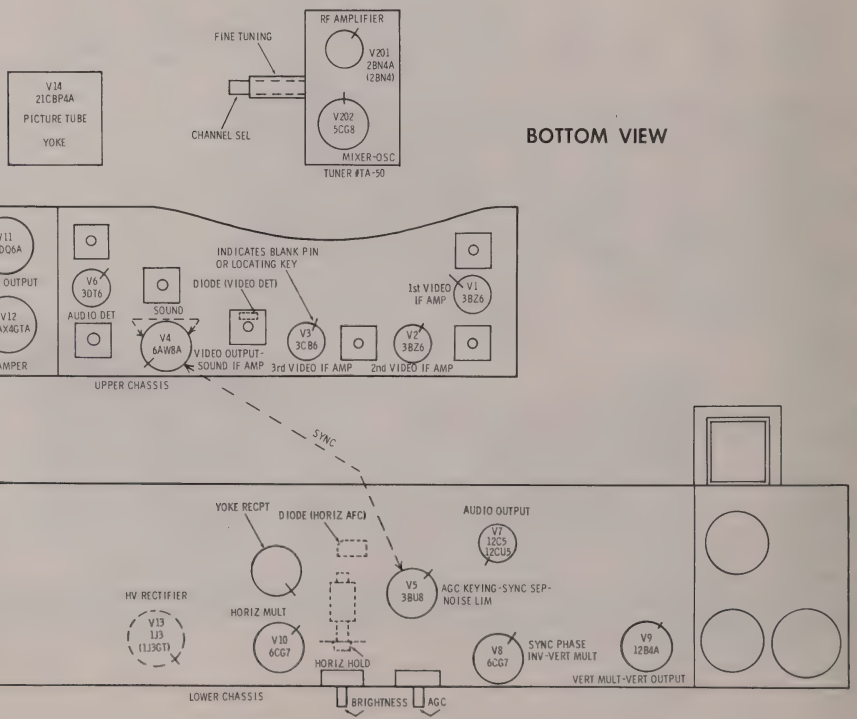


UPPER CHASSIS - TOP VIEW

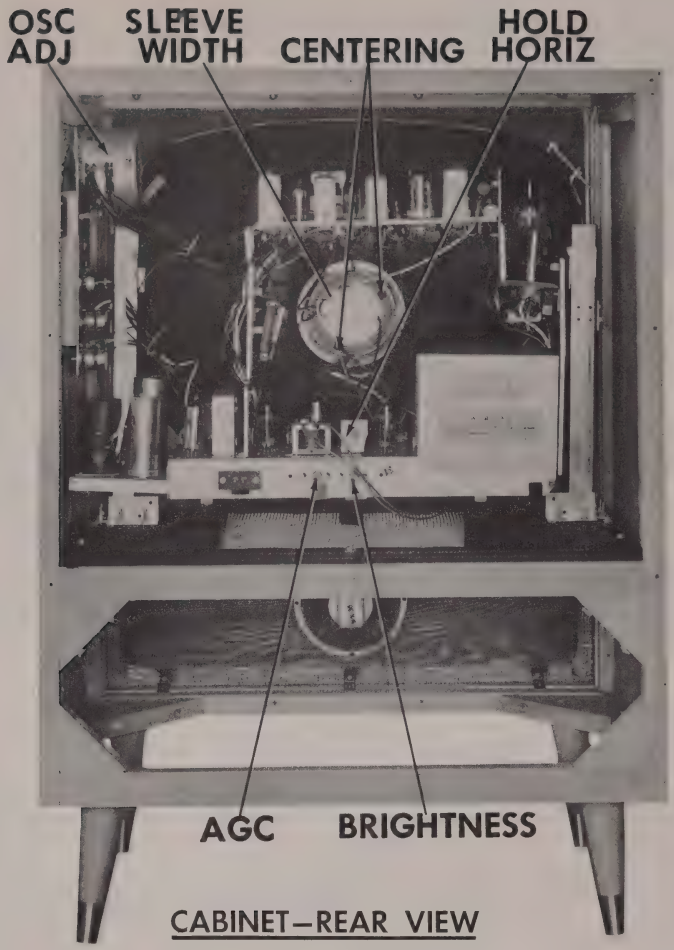
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BZ6	150K	47Ω	18Ω	16Ω	▲540Ω	▲540Ω	0Ω		
V2	3BZ6	110K	130K	16Ω	14Ω	†530Ω	†530Ω	130K		
V3	3CB6	.1Ω	150Ω	14Ω	12Ω	■470Ω	■470Ω	0Ω		
V4	6AW8A	0Ω	100K	■100K	9Ω	12Ω	● 100Ω	6900Ω	■1200Ω	†7500Ω
V5	3BU8	■0Ω	†8200Ω	2meg	66Ω	64Ω	● 25K	†390K	†47K	■ 4.7meg
V6	3DT6	18Ω	680Ω	9Ω	7Ω	†330K	■ 8200Ω	560K		
V7	12C5 12CU5	¶ 50K	400K	64Ω	56Ω	NC	†280Ω	†500Ω		
V8	6CG7	● *2.8meg	220K	● 200K	52Ω	56Ω	†12K	1.8meg	3300Ω	0Ω
V9	12B4A	● 1200Ω	NC	52Ω	45Ω	45Ω	NC	2.2meg	NC	†380Ω
V10	6CG7	†9200Ω	1.6meg	1500Ω	66Ω	70Ω	†100K	68K	1500Ω	0Ω
V11	12DQ6A	NC	70Ω	NC	†22K	470K	TP	80Ω	33Ω	TOP CAP †16Ω
V12	12AX4GTA	NC	NC	620K	NC	†60Ω	NC	100Ω	92Ω	
V13	1J3	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †465Ω
V14	21CBP4A	4Ω	39K	Pin 6 †60Ω	Pin 10 †60Ω	Pin 11 ● 100K	Pin 12 7Ω			
V201	2BN4A	0Ω	4meg	0Ω	1Ω	■1300Ω	0Ω	0Ω		
V202	5CG8	10K	■ 6000Ω	0Ω	4Ω	1Ω	■1300Ω	■10K	0Ω	320K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM OUTPUT OF M1.
* MEASURED FROM PIN 3 OF V12.
NC NO CONNECTION
■ MEASURED FROM PIN 1 OF V7.
▲ MEASURED FROM PIN 2 OF V2.
TP TIE POINT



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Set the Brightness and Contrast Controls for a normal picture.

Turn the Horizontal Hold (Freq.) clockwise until the picture loses sync.

It may be necessary to switch off channel and back again for picture to lose sync.

Turn the Horizontal Hold slowly counterclockwise until the picture just falls into sync.

DISASSEMBLY INSTRUCTIONS

CHASSIS AND PICTURE TUBE REMOVAL

1. Remove 8 wood screws holding rear cover.
2. Remove rear cover.
3. Remove 6 push-on type knobs at side of cabinet.
4. Remove 3 screws holding tuner and control panel.
5. Remove 6 bolts to mounting board.
6. Remove chassis with picture tube on mounting board.

PHOTOFACT® Folder

PRODUCTION CHANGE BULLETIN 255

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 7 IN SET 505

MAGNAVOX CHASSIS 57-03-10, 57-03-20

Magnavox Chassis 57-03-00 was covered in PHOTOFACT Folder 7 - Set 505.

Chassis 57-03-10, 57-03-20 are electrically similar except for the following changes.

Ch. 57-03-10

COMPONENT CHANGES

R28 is increased from 100K to 470K.

R32 is increased from 100K to 470K.

COMPONENTS OMITTED

R27 is omitted.

R31 is omitted.

COMPONENTS ADDED

A 220mmf Capacitor is added between Lugs 6 and 7 of K3.

A 220mmf Capacitor is added between Lugs 1 and 2 of K3.

A 470mmf Capacitor is added between Lugs 3 and 4 of K3.

A 150Ω Resistor is added from Lug 4 of K3 to ground.

A 330K Resistor is added between Lugs 6 and 7 of K3.

A 330K Resistor is added between Lugs 1 and 2 of K3.

A 1meg Resistor is added between Lugs 1 and 7 of K3.

Ch. 57-03-20

COMPONENT CHANGES

R27 is increased from 1.5meg to 4.7meg.

R28 is increased from 100K to 470K.

R29 is increased from 3300Ω to 4700Ω.

(Continued On The Reverse Side)

PRODUCTION CHANGE BULLETIN 255

PRODUCTION CHANGE BULLETIN 255

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 6 IN SET 488

CAPITOL MODELS 954, 954C

Capitol Models 954, 954C were covered in PHOTOFACT Folder 6 - Set 488.

The following changes are made by the manufacturer during late production.

TO REDUCE HUM

C33 is increased from .003 to .05.

R28 is increased from 100K to 10meg.

R30 (2200Ω Resistor) connected from Pin 7 of V8 (6C4) to ground is omitted.

Pin 7 is connected to ground.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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SET 522 FOLDER 3

R31 is increased fron 1.5meg to 4.7meg.

R32 is increased from 100K to 470K.

R33 is increased from 3300Ω to 4700Ω.

COMPONENTS ADDED

A 220mmf Capacitor is added between Lugs 6 and 7 of K3.

A 220mmf Capacitor is added between Lugs 1 and 2 of K3.

A 470mmf Capacitor is added between Lugs 3 and 4 of K3.

A .01 Capacitor is inserted between Pin 2 of V8 (12AX7) and the center arm of R1B (Loudness Control).

A 150Ω Resistor is added from Lug 4 of K3 to ground.

A 330K Resistor is added between Lugs 1 and 2 of K3.

A 330K Resistor is added between Lugs 6 and 7 of K3.

A 1meg Resistor is added between Lugs 1 and 7 of K3.

A .01 Capacitor is inserted between Pin 7 of V8 (12AX7) and the center arm of R1A (Loudness Control).

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 1 IN SET 462

RCA VICTOR MODELS 231DA765, 231DA766 (CH. KCS127ZH)

RCA Victor Models 210KA465, 210KA466, 210T195, 210T196, 210T199, 240K495U, X, XU, 240K496X, 240K497X (Ch. KCS127A, B, F, L, LX, MX) were covered in PHOTOFACT Folder 1 - Set 462.

Models 231DA765, 231DA766 (Ch. KCS127ZH) are electrically similar except for the following changes.

COMPONENT CHANGES

C6 is increased from 8mmf to 9.5mmf ±5%, 500V.

L14 is changed to Part #101819.

R24 is decreased from 470K to 47K.

R75 is decreased from 820K to 82K.

R2 (Contrast Control) is changed to Part #107330.

R9 is decreased from 15K to 10K ±5%, ½ watt.

R62 is increased from 3300Ω to 33K.

T5 (Audio Output Transformer) is changed to Part #109299.

PICTURE TUBE CHANGE

Chassis KCS127ZH uses a Type 23EP4 picture tube. The only difference between the picture tubes is the pin connections. Pins 1 and 8 become 4 and 5, Pin 7 becomes Pin 3, Pin 2 becomes Pin 6, Pin 3 becomes Pin 7, Pin 4 becomes Pin 8.

(Continued On The Reverse Side)

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 1 IN SET 508

KARMANN GHIA MODEL OBG, VOLKSWAGEN MODELS OBT, OBV

Karmann Ghia Model OBG, Volkswagen Models OBT, OBV were covered in PHOTOFACT Folder 12 - Set 508.

The following changes were made by the manufacturer during late production.

COMPONENT CHANGES

C3 is decreased from 20mfd @ 16 volts to a .05mfd.

R4 is decreased from 100K to 56K ½ watt 5%.

R12 is decreased from 10K to 6800Ω ½ watt 10%.

R29 is increased from 220Ω to 1000Ω.

R6, R8, R13 are changed to 10% tolerance.

COMPONENTS ADDED

A 1 mfd Capacitor is added from the Base to the Collectoe of X1 (RF Amplifier).

A 250K Sensitivity Control (Part #2090905-1) is added. The high side of the control connects to R4 after R4 is disconnected from ground. The other side of the control is left open. The center tap is connected to ground.

A 10K ½ watt 20% Resistor is added from the junction of R4 and the Sensitivity Control to the 5.2 volt source.

A 68K ½ watt 10% Resistor is added from Lug 1 of L5 (Input IF Transformer) to the junction of R15 and C1.

A 1500Ω ½ watt 20% Resistor is added from the Base of X3 (IF Amplifier) to Lug 1 of L5 (Input IF Transformer).

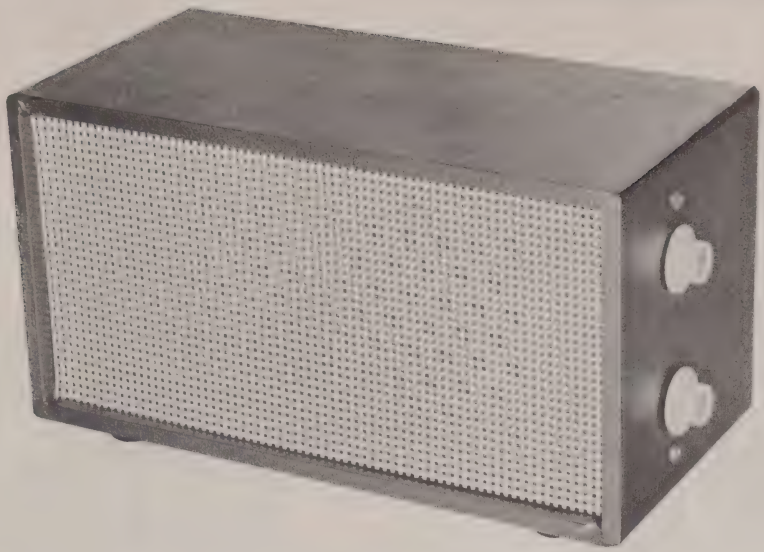
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

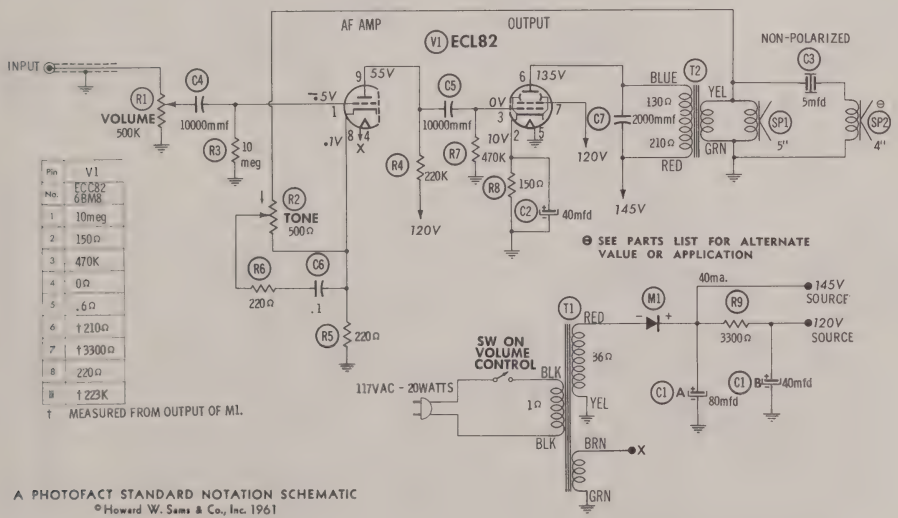
NAME	PART NO.	DESCRIPTION
Knob	107654	VHF Channel Selector
Knob	106596	Fine Tuning, Model 231DA765
Knob	107583	Fine Tuning, Model 231DA766
Knob	107264	Off-On-Volume, Contrast
Knob	107488	Brightness
Knob	107490	Vertical
Knob	107489	Horizontal
Knob	107584	Fringe Clarity Switch, Model 231DA765
Knob	107586	Fringe Clarity Switch, Model 231DA766
Knob	107742	Programmer
Knob	107741	Clock Pointer
Cabinet	X4819	Mahogany, Model 231DA765
Cabinet	X4820	Walnut, Model 231DA766
Escutcheon	107754	Channel Indicator
Escutcheon	107657	Channel Programmer
Escutcheon	106512	Fine Tuning
Clock Dial	107743	

PHOTOFACT® Folder

**AIRLINE MODEL
GTL-3852A**



TRADE NAME	Airline Model GTL-3852A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago 7, Illinois
TYPE SET	AC Operated One Tube Audio Amplifier
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles RATING 20 Watts, .25 Amp. @117 Volts AC



Pin No.	V1 ECC82 6BM8
1	10meg
2	150Ω
3	470K
4	0Ω
5	.6Ω
6	†210Ω
7	†3300Ω
8	220Ω
9	†223K

† MEASURED FROM OUTPUT OF M1.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KX338

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AIRLINE MODEL
GTL-3852A

AIRLINE MODEL
GTL-3852A

SET 522 FOLDER 4

PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC •		• RAYTHEON • SYLVANIA •			
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	AF Amp. -Output	ECL82/6BM8			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA AIRLINE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	80	150	TC-2014	PRS2230	BBRD8415	TCD4975	TDLD-11	TVA-2461	
B	40	150							
C2	40	10	TC-1996	PTT-10040	NLW40-10	TT15X40	MLV40-12	TE-1119	
C3	5	12NP	TC-2000	PRS7405	BBR4-150	TCN105		TVANS-1150 *	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C5	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C6	.1 200V		P288N-1	DF-104	CUB2P1	2DP-S-104	GEM-201	2TM-P10
C7	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA AIRLINE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	1/2	TC-1965	B-60-S	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	Power Off-On
R2A	5000Ω	1/2	TC-1964	B-11	A47-5000-S	Q13-114	U12	Tone
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	10meg			
R4	220K			
R5	220Ω			
R6	220Ω			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R7	470K			
R8	150Ω			
R9	3300Ω			

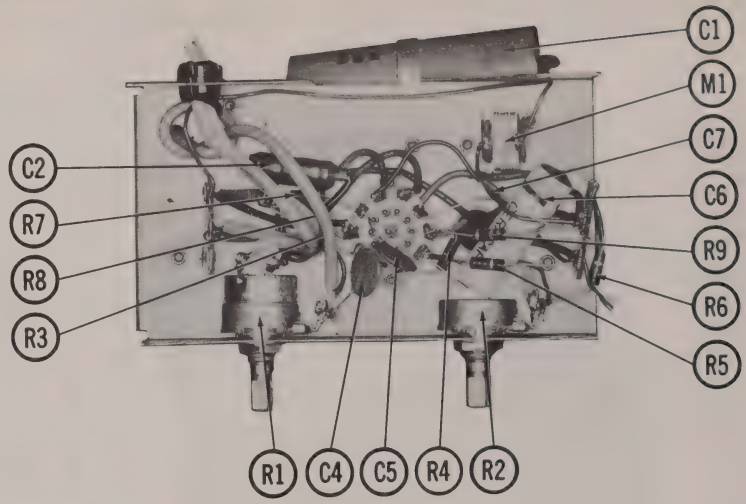
TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA AIRLINE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V ⓐ .25A	130V ⓐ .040A DC	6.3V ⓐ .78A	TT-785					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA AIRLINE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	3400Ω	3-4Ω	TT-786	A-3018①	A-3877	26850①	S-30X	① Drill New Mounting Hole (s).

CHASSIS—BOTTOM VIEW



SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA AIRLINE PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	5"	PM	3-4Ω	TS-1926	5A1	* Alternate Part #TS-1927
SP2	4"	PM	6-8Ω	TS-1927A *	4A07Z6	

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA AIRLINE PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.040A	TR-1921 *	1N1763 †	65 *	SR200 †	* Selenium † Silicon

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	TK-267-1	Volume
Knob	TK-268-1	Tone

WIRING DATA

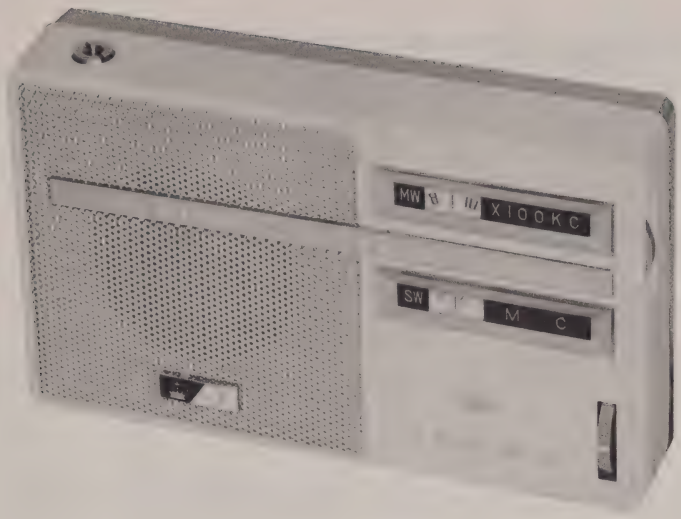
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder with CIRCUITRACE®

CROWN
MODEL TR-750

CROWN
MODEL TR-750



TRADE NAME	Crown Model TR-750
IMPORTER	Shriro, Inc., 276 Fourth Ave., New York 10, N. Y.
TYPE SET	Battery Operated Transistorized Portable BC-SW Receiver
POWER SUPPLY	6 Volts DC
RATING	7MA @ 6 Volts DC (No Signal, Min. Volume)
	20MA @ 6 Volts DC (Signal, Normal Volume)
TUNING RANGE—BROADCAST	540 – 1600KC
SHORT WAVE	4–10MC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3, A5. . . GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A4, A6, A7, A9. . GENERAL CEMENT #5000, 5003, 5066, 8271, 8272, 8276, 8277, 8290, 8609, 8722, 9150, 9298
WALSCO #2515, 2516, 2518, 2519, 2525, 2541
A8. . . . . GENERAL CEMENT #9440

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400~ Mod.)	(MW) Tuning gang fully open.	Across voice coil.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1600KC	1600KC	"	A4	"
3.	"	600KC	600KC	"	A5	"
4.	"	1400KC	1400KC Signal.	"	A6	Adjust for maximum output while rocking tuning gang.
5.	"	10MC	(SW) 10MC	"	A7	Adjust for maximum output.
6.	"	4MC	4MC	"	A8	"
7.	"	8MC	8MC Signal.	"	A9	Adjust for maximum output while rocking tuning gang.

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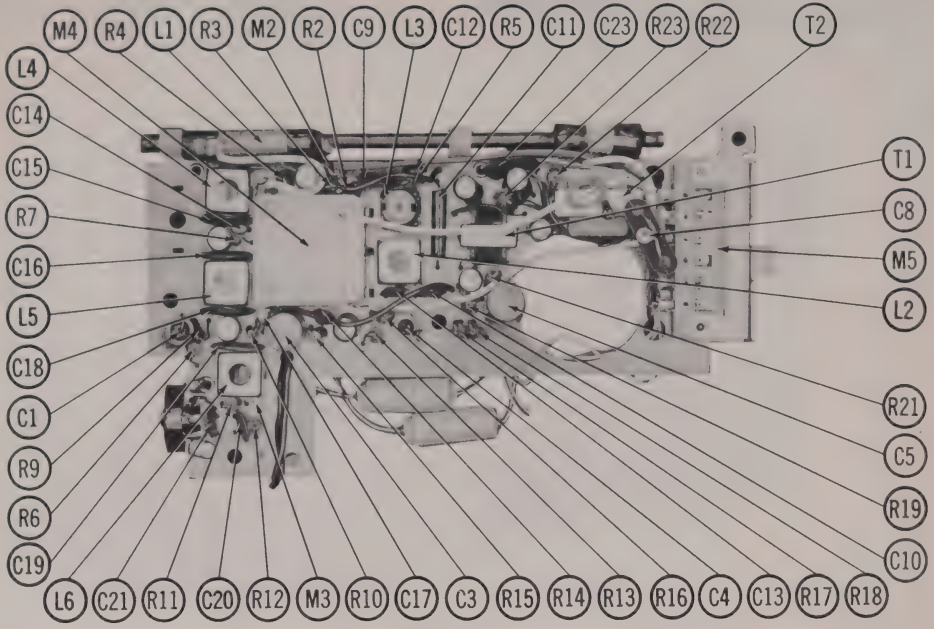
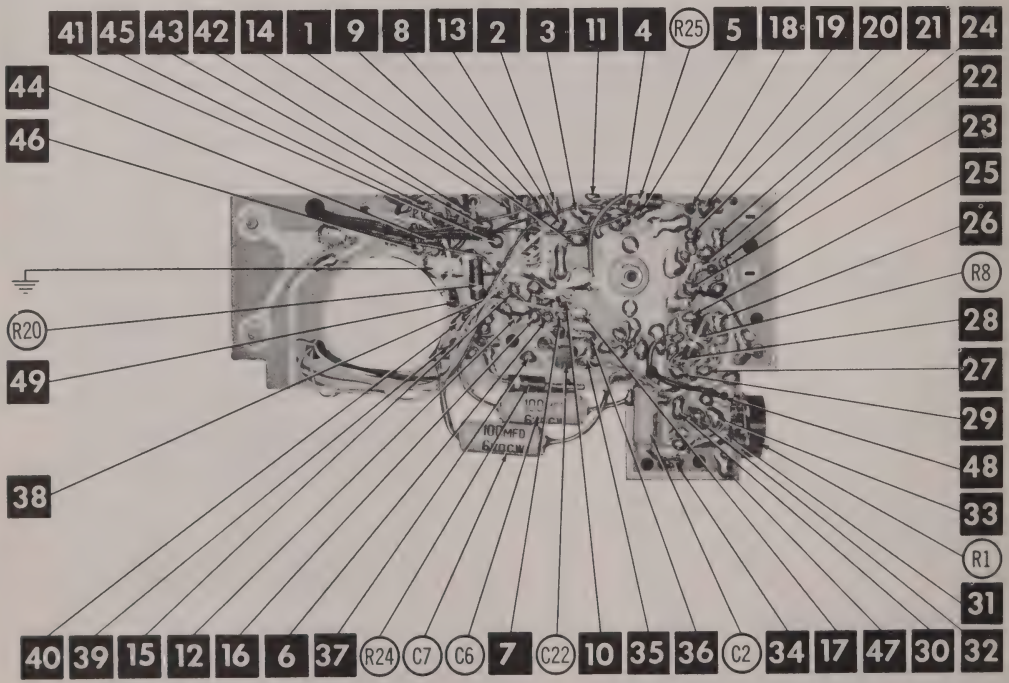
KF300

SET 522 FOLDER 5



PRINTED BOARD



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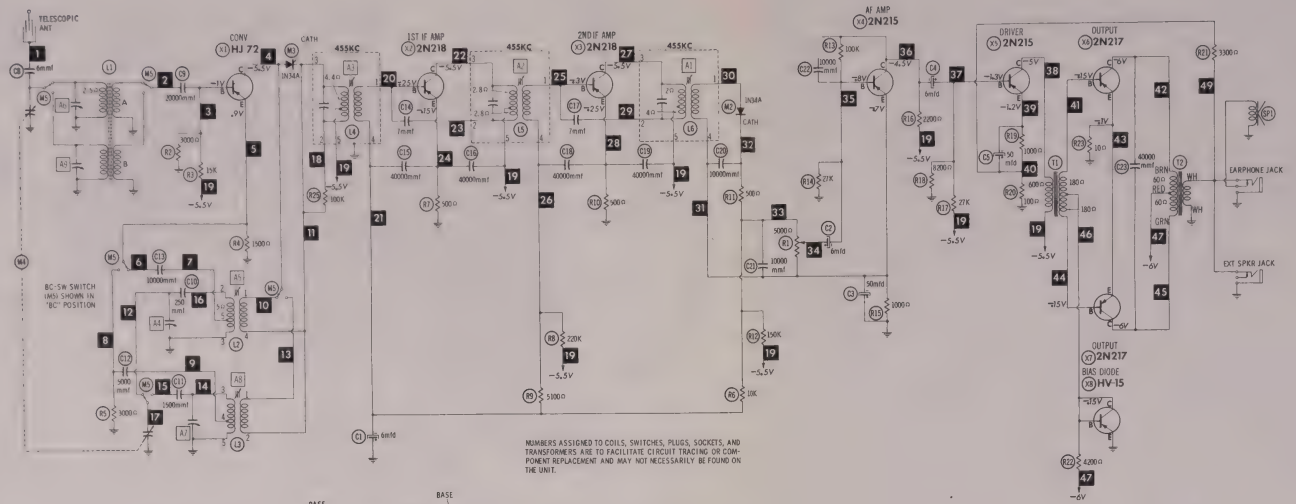
TELESCOPIC ANT
CONV X1 HJ 72
1ST IF AMP X2 2N218
2ND IF AMP X3 2N218
AF AMP X4 2N215
DRIVER X5 2N215
OUTPUT X6 2N217
OUTPUT X7 2N217
BIAS DIODE X8 HV-15
455KC
BC-SW SWITCH (MS) SHOWN IN "BC" POSITION
EARPHONE JACK
EXT SPKR JACK
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
TRANSISTOR TERM GUIDE X1
TRANSISTOR TERM GUIDE X2 THRU X8
TERM VIEW L2
TERM VIEW L3
TERM VIEW L4, L5 & L6
RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.
1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.
6 VOLTS TOTAL
ON-OFF SW ON VOLUME CONTROL
-6V SOURCE
-5.5V SOURCE

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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CROWN
MODEL TR-750

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA: RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
X1	HJ-72	Converter				PNP
X2	2N218	1st IF Amplifier	2N218	2N482	2N218	PNP
X3	2N218	2nd IF Amplifier	2N218	2N482	2N218	PNP
X4	2N215	AF Amplifier	2N407	2N362	2N104	PNP
X5	2N215	Driver	2N407	2N362	2N104	PNP
X6	2N217	Output	2N407	2N633	2N217	PNP
X7	2N217	Output	2N407	2N633	2N217	PNP
X8	HV-15	Bias Diode	1N2326			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	RATING: VOLT.	REPLACEMENT DATA: CROWN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	6	6			NLW5-6	TT10X6	MLV10-6	TE-1085	
C2	6	6			NLW5-6	TT10X6	MLV10-6	TE-1085	
C3	50	6		BCD6050	NLW50-6	TT6X50	ML50-6	TE-1100	
C4	6	6			NLW5-6	TT10X6	MLV10-6	TE-1085	
C5	50	6		BCD6050	NLW50-6	TT6X50	ML50-6	TE-1100	
C6	100	6		PTT-6100	NLW100-6	TT6X100	ML100-6	TE-1102	
C7	100	6		PTT-6100	NLW100-6	TT6X100	ML100-6	TE-1102	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C8	6			DD-060	C10V6C			10TS-V60
C9	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C10	250		DI-250	DD-251	L10T25	CCD-251	GP325	10TS-T25
C11	1500		1467-0015	DD-152	5R5D15	CM-20E-152	MC256	1FM-215
C12	5000		C80V502AM	DA-502	H-05D5	CCD-502	TA-250	TG-D50
C13	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C14	7							
C15	40000							
C16	40000							
C17	7		DI-6.8	DD-6R8	L10V7	CCTO-6R8	CNO-568	10TCC-V68
C18	40000							
C19	40000							
C20	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C21	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C22	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C23	40000							

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROWN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	5000Ω	1/10		B16-214				Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	3000Ω			
R3	15K			
R4	1500Ω			
R5	3000Ω			
R6	10K			
R7	500Ω			
R8	220K			
R9	5100Ω			
R10	500Ω			
R11	500Ω			
R12	150K			
R13	100K			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R14	27K			
R15	1000Ω			
R16	2200Ω			
R17	27K			
R18	8200Ω			
R19	1000Ω			
R20	100Ω			
R21	3300Ω			
R22	4200Ω			
R23	10Ω			
R24	100Ω			
R25	100K			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: CROWN PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	NOTES
L1A	BC Loopstick					
B	SW Loopstick					
L2	BC Osc. Coil					
L3	SW Osc. Coil					
L4	1st IF Trans.					
L5	2nd IF Trans.					
L6	3rd IF Trans.					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO: PRI.	TURNS RATIO: SEC.	REPLACEMENT DATA: CROWN PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	1	1	TRT-30					

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	CROWN PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	200Ω CT	6-8Ω	TRT-32		TA-20①			① Use 12Ω Secondary.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	CROWN PART No.	QUAM PART No.	
SP1	2 1/4"	PM	6-8Ω			

BATTERIES

ITEM No.	VOLTAGE	CROWN PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V			930 *		1015 *		M-15R *	* 4 Required

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		CROWN PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1N34A			1N34A	1N34A	Detector (Pigtail)
M3	1N34A			1N34A	1N34A	Overload & AVC (Pigtail)

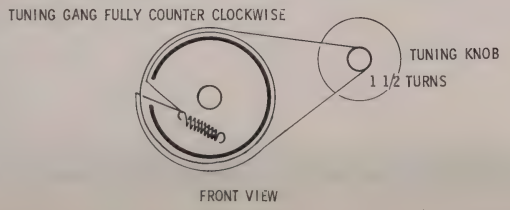
MISCELLANEOUS

ITEM No.	PART NAME	CROWN PART No.	NOTES
M4	Tuning Cap		2 Gang
M5	Switch		BC-SW (Slide Type)

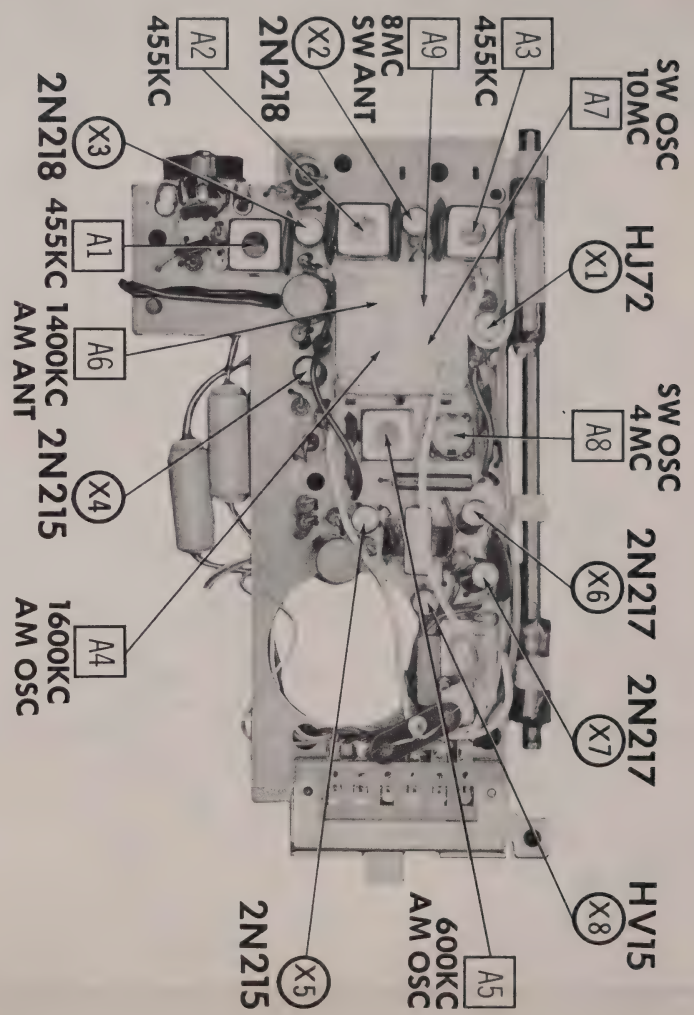
WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

TUNING DRIVE CORD STRINGING



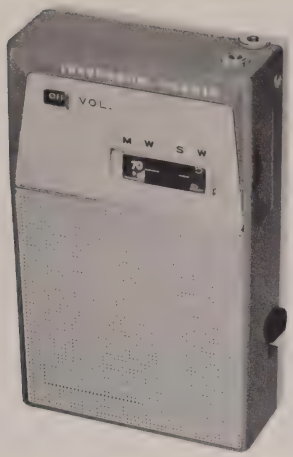
CHASSIS—TOP VIEW



PHOTOFACT® Folder with CIRCUITRACE®

JEFFERSON-TRAVIS MODEL JT-G200

JEFFERSON-TRAVIS
MODEL JT-G200



TRADE NAME	Jefferson-Travis Model JT-G200		
SUPPLIER	Jefferson-Travis, Inc., Subsidiary of Emerson Radio & Phonograph Corp., 524 W. 23rd Street, New York 11, N. Y.		
TYPE SET	Battery Operated Transistorized Portable BC-SW Receiver		
POWER SUPPLY	9 Volts DC	RATING	6MA @ 9 Volts DC (No Signal, Min. Volume) 10MA @ 9 Volts DC (Signal, Normal Volume)
TUNING RANGE	BROADCAST 540 - 1600KC	SHORT WAVE	3.9 - 12MC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A5, A7, A9, All ... GENERAL CEMENT #5000, 5003, 5066, 8271, 8272, 8276, 8277, 8290, 8609, 8722, 9150, 9298
WALSCO #2515, 2516, 2518, 2519, 2525, 2541
A6 .....GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to antenna stator lug of tuning gang. Low side to chassis.	455KC (400% Mod.)	(MW) Tuning gang fully open	Across Voice Coil	A1, A2, A3	Adjust for maximum output.
2.	High side thru 500K to external antenna jack. Low side to chassis.	530KC	(MW) Tuning gang fully closed	"	A4	"
3.	"	1650KC	(MW) Tuning gang fully open	"	A5	"
4.	"	630KC	(MW) 630KC	"	A6	"
5.	"	1400KC	(MW) 1400KC	"	A7	"
6.	"	3.86MC	(SW) Tuning gang fully closed	"	A8	"
7.	"	12.3MC	(SW) Tuning gang fully open	"	A9	"
8.	"	4MC	(SW) 4MC	"	A10	"
9.	"	10MC	(SW) 10MC	"	A11	Adjust for maximum output. Repeat steps 2 thru 9.

JEFFERSON-TRAVIS
MODEL JT-G200

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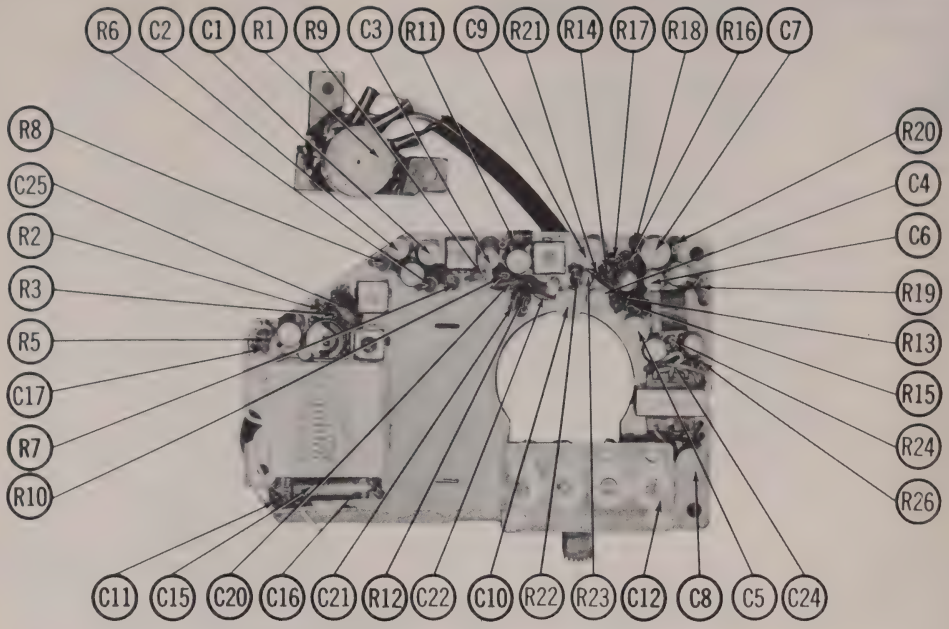
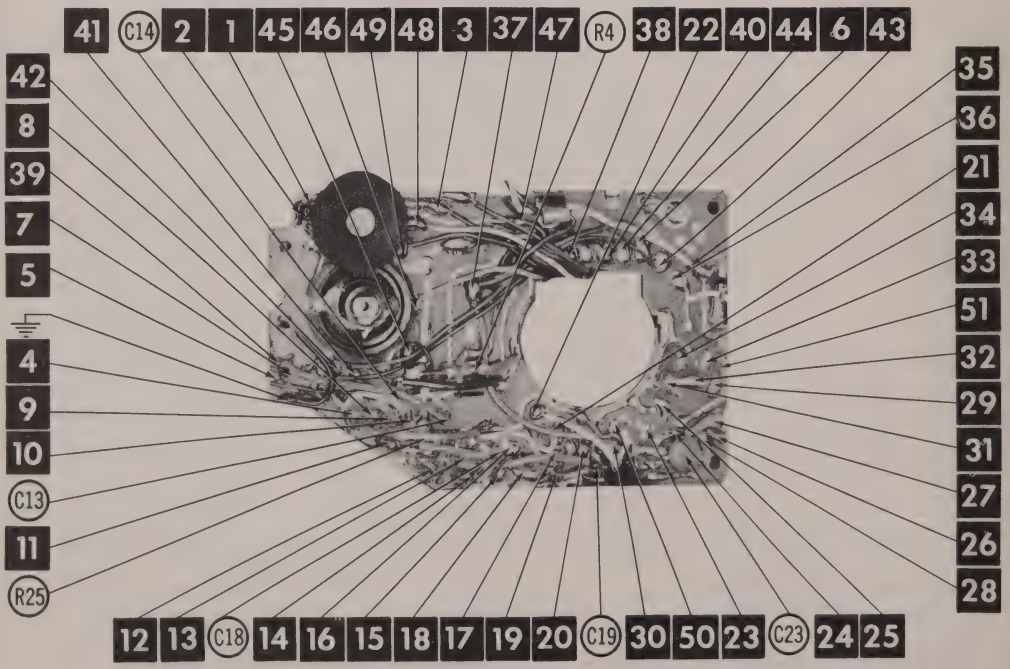
KF256

DATE 3-61 SET 522 FOLDER 6

SET 522 FOLDER 6



PRINTED BOARD-CAPACITOR AND RESISTOR IDENTIFICATION



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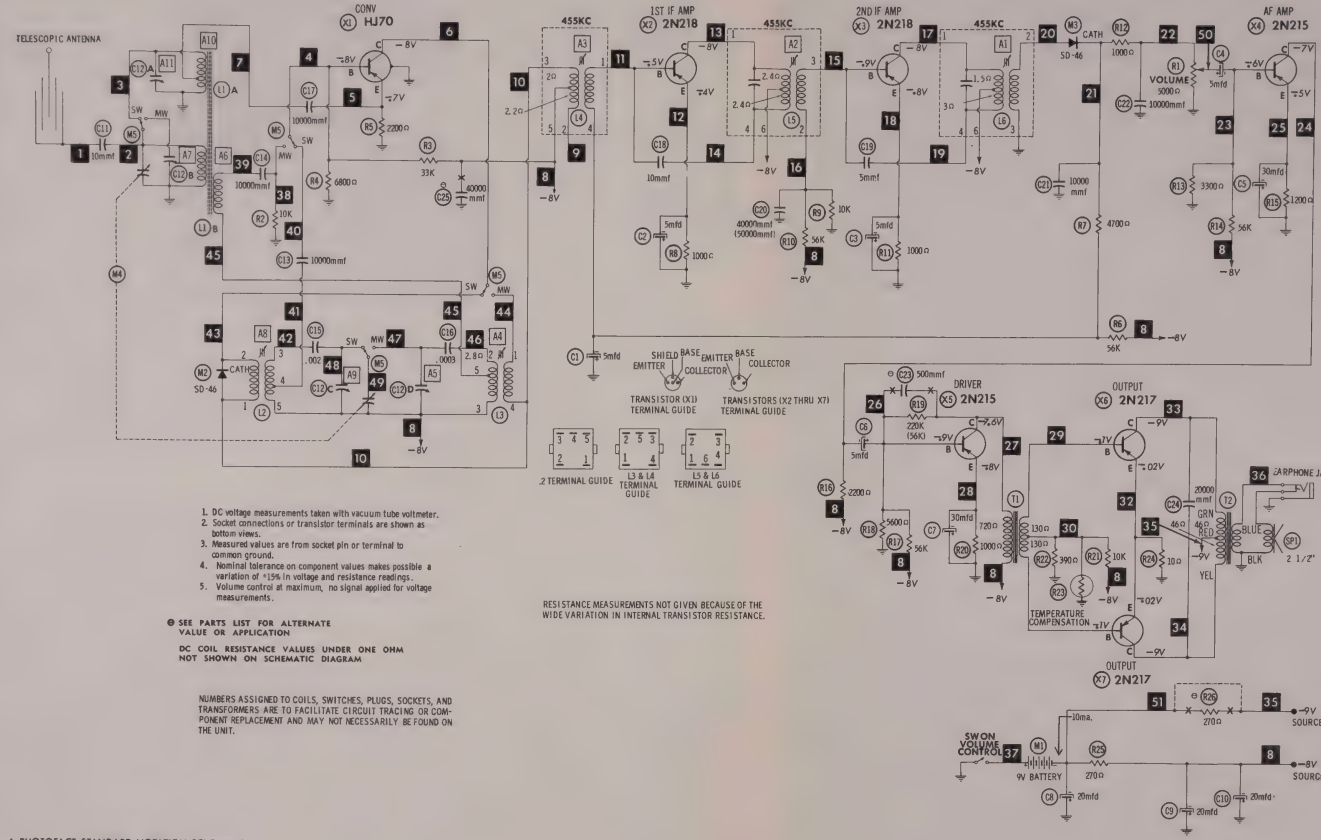
PRINTED BOARD



1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE

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JEFFERSON-TRAVIS
MODEL JT-G200

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	HJ-70	Converter				PNP
X2	2N218	1st IF Amplifier	2N218	2N482	2N218	PNP
X3	2N218	2nd IF Amplifier	2N218	2N482	2N218	PNP
X4	2N215	AF Amplifier	2N407	2N362	2N104	PNP
X5	2N215	Driver	2N407	2N362	2N104	PNP
X6	2N217	Output	2N407	2N633	2N217	PNP
X7	2N217	Output	2N407	2N633	2N217	PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	Jefferson-Travis PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	5	6	CD-231B	BCD6005	NLW5-6	PET1535	ML5-6	TE-1084	
C2	5	6	CD-231B	BCD6005	NLW5-6	PET1535	ML5-6	TE-1084	
C3	5	6	CD-231B	BCD6005	NLW5-6	PET1535	ML5-6	TE-1084	
C4	5	6	CD-231B	BCD6005	NLW5-6	PET1535	ML5-6	TE-1084	
C5	30	3	CD-232B	BCD3025	NLW25-3	PET130	MLV30-6	TE-1092	
C6	5	6	CD-231B	BCD6005	NLW5-6	PET1535	ML5-6	TE-1084	
C7	30	3	CD-232B	BCD3025	NLW25-3	PET130	MLV30-6	TE-1092	
C8	20	10	CD-233B	BCD12020	NLW20-15	TT15X20	MLV25-15	TE-1130	
C9	20	10	CD-233B	BCD12020	NLW20-15	TT15X20	MLV25-15	TE-1130	
C10	20	10	CD-233B	BCD12020	NLW20-15	TT15X20	MLV25-15	TE-1130	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C11	10		DI-10	DD-100	L10Q1	CCD-100	GP410	10TS-Q10
C12A B C D		#CD-137						

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C13	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C14	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C15	.002 125V		P285N-002	DM-202	BYA10D2		GEM-622	10TS-D20
C16	.0003 125V			DM-301	L10T3	CCD-301		10TS-T30
C17	10000		C80V103AM	DM-103	H-05S1			TG-S10
C18	10		DI-10	DD-100	L10Q1	CCD-100	GP410	10TS-Q10
C19	5		DI-5	DD-050	L10Q5	CCD-050	GP550	10TS-V50
C20	40000	(50000) †						
C21	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C22	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C23	500	Note 1	DI-500	DM-501	L10T5	CCD-501	B-350	10TS-T50
C24	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C25	40000	Note 1						

Jefferson-Travis Part Number. † Alternate Value. Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Jefferson-Travis PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	1/4	RD-135	B16-214				Volume and Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	10K				R15	1200Ω			
R3	33K				R16	2200Ω			
R4	6800Ω				R17	56K			
R5	2200Ω				R18	5600Ω			
R6	56K				R19	220K			(56K) *
R7	4700Ω				R20	1000Ω			
R8	1000Ω				R21	10K			
R9	10K				R22	390Ω			
R10	56K				R23	Temp. Comp.			Pt. #B-2B
R11	1000Ω				R24	10Ω			
R12	1000Ω				R25	270Ω			
R13	3300Ω				R26	270Ω			Note 1
R14	56K								

Note 1. Not used in some versions.

* Alternate Value

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA Jefferson-Travis PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	NOTES
L1A B	SW Loopstick BC Loopstick	LT-155K				
L2	SW Osc. Coil	LT-237				
L3	BC Osc. Coil	LT-236				
L4	1st IF Trans.	LT-330A				
L5	2nd IF Trans.	LT-330B				
L6	3rd IF Trans.	LT-330C				

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO PRI.	SEC.	REPLACEMENT DATA Jefferson-Travis PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2	1	LT-514			TR-125		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	SEC.	REPLACEMENT DATA Jefferson-Travis PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	2000Ω CT	8-10Ω	LT-441					

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA Jefferson-Travis PART No.	QUAM PART No.	NOTES
SP1	2½"	PM	8-10Ω	SP6.5-02		

BATTERIES

ITEM No.	VOLTAGE	Jefferson-Travis PART No.	REPLACEMENT DATA BURGESS "A"	BURGESS "B"	EVEREADY "A"	EVEREADY "B"	MALLORY "A"	MALLORY "B"	NOTES
M1	9V	006P		2U6		216		M-1604	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA Jefferson-Travis PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M2	SD-46	SD-46		1N60	1N60	SW Osc. Comp. (Pigtail)
M3	SD-46	SD-46		1N60	1N60	Detector (Pigtail)

MISCELLANEOUS

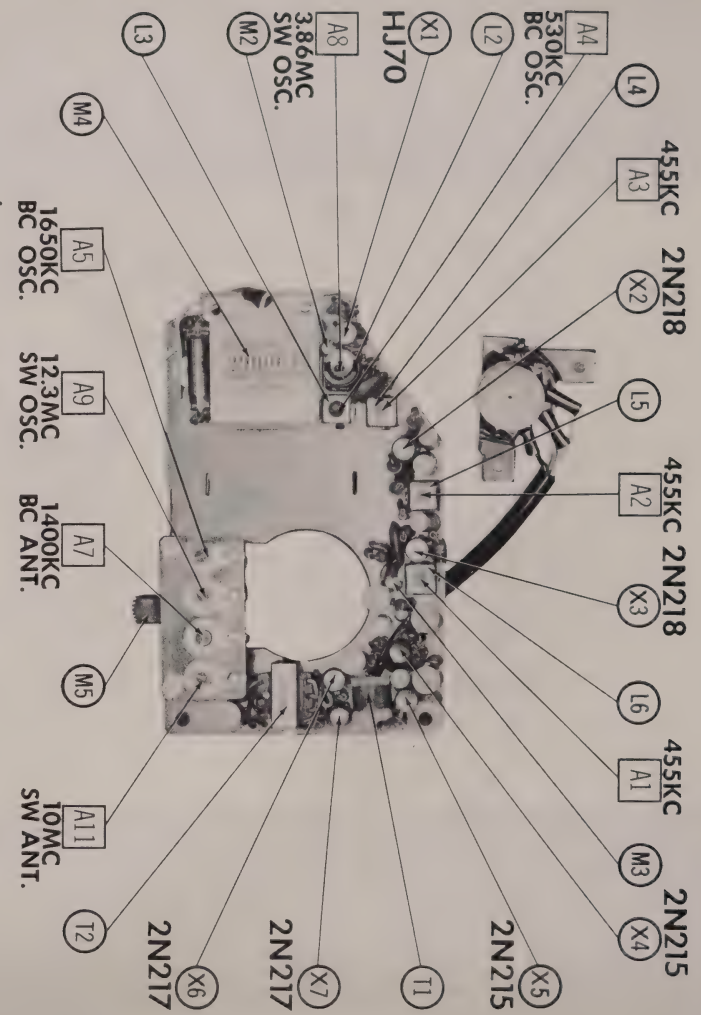
ITEM No.	PART NAME	Jefferson-Travis PART No.	NOTES
M4	Tuning Cap.	CD-136	2 Gang
M5	Switch	SD-116	MW-SW (Slide Type)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Cabinet	MD-2210B	

CHASSIS—TOP VIEW



PHOTOFACT® Folder with CIRCUITRACE®

LAFAYETTE
MODEL FS-204

LAFAYETTE
MODEL FS-204

LAFAYETTE
MODEL FS-204

TRADE NAME	LaFayette Model FS-204
SUPPLIER	LaFayette Radio, 165-08 Liberty Ave., Jamaica 33, N. Y.
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	9 Volts DC
TUNING RANGE—BROADCAST	540 — 1600KC RATING 10MA@9 Volts DC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2...GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A3, A5..GENERAL CEMENT #5000, 5003, 5066, 8271, 8272, 8276, 8277, 8290, 8609, 8722, 9150, 9298
WALSCO #2515, 2516, 2518, 2519, 2525, 2541
A4.....GENERAL CEMENT #8282, 8606, 8606-L, 9091
WALSCO #2526, 2541, 2542, 2543, 2544

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400∿ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1600KC	1600KC Signal.	"	A3	"
3.	"	600KC	600KC Signal.	"	A4	"
4.	"	1400KC	1400KC Signal.	"	A5	Adjust for maximum output. Repeat Steps 2 thru 4.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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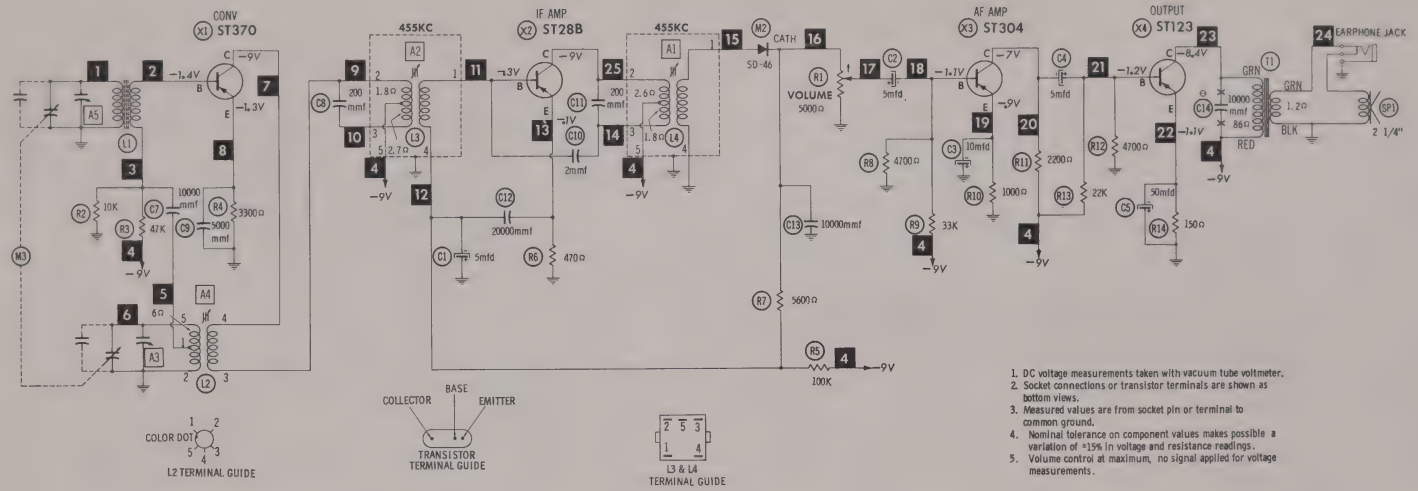
KF221

SET 522 FOLDER 7



COLOR DOT

L2 TERMINAL GUIDE

TRANSISTOR TERMINAL GUIDE

L3 & L4 TERMINAL GUIDE

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

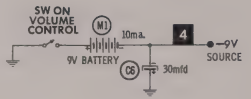
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)



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LAFAYETTE MODEL FS-204

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	ST370	Converter				PNP
X2	ST28B	IF Amplifier				PNP
X3	ST304	AF Amplifier				PNP
X4	ST123	Output				PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	LAFAYETTE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	5	6		PTT-6005	NLW5-6	TT6X5	MLV5-6	TE-1084	
C2	5	6		PTT-6005	NLW5-6	TT6X5	MLV5-6	TE-1084	
C3	10	3		PTT-3010	NLW10-3	TT3X10	ML10-6	TE-1053	
C4	5	6		PTT-6005	NLW5-6	TT6X5	MLV5-6	TE-1084	
C5	50	6		PTT-6050	NLW50-6	TT6X50	ML50-6	TE-1100	
C6	30	12		PTT-12030	NLW30-15	TT15X30	MLV35-15	TE-1158	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C8	200		SI 200	D6-201	L10T2	CCD-201	GP320	10TS-T20
C9	5000		C80V502AM	DM-502	H-05D5	CCD-502	GP250	TG-D50
C10	2		NPO-SI 2	TCZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22
C11	200		SI 200	D6-201	L10T2	CCD-201	GP320	10TS-T20
C12	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C13	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C14	10000	Note 1	C80V103AM	DM-103	H-05S1		TA-110	TG-S10

Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	LAFAYETTE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	1/4		B16-214				Volume & Switch

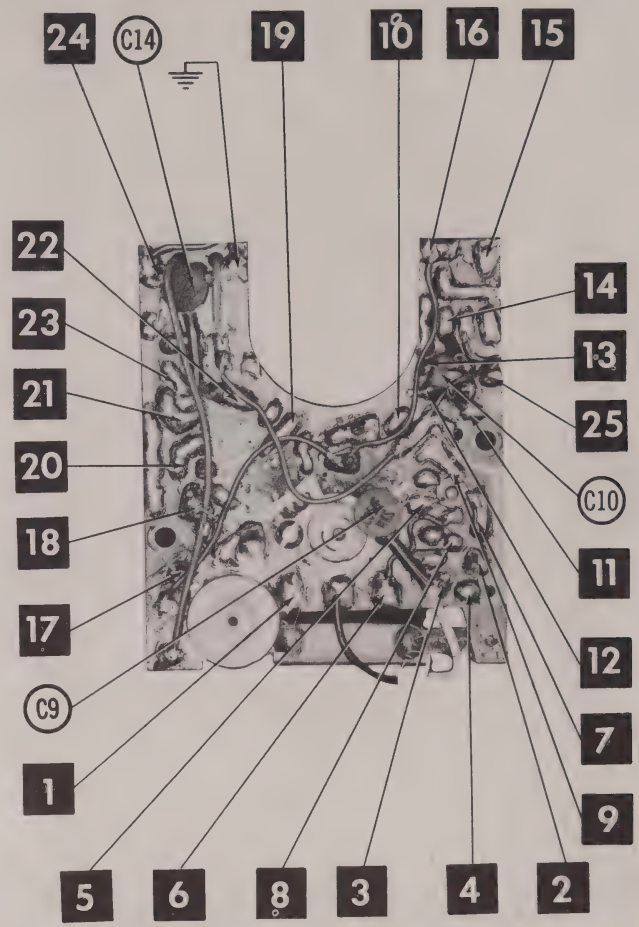
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	10K				R9	33K			
R3	47K				R10	1000Ω			
R4	3300Ω				R11	2200Ω			
R5	100K				R12	4700Ω			
R6	470Ω				R13	22K			
R7	5600Ω				R14	150Ω			
R8	4700Ω								

PRINTED BOARD

A Howard W. Sams CIRCUITRACE* Photo



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		LAFAYETTE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1 L2 L3 L4	Loopstick Osc. Coil Input IF Trans. Output IF Trans.					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	LAFAYETTE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1000Ω	6-8Ω						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	LAFAYETTE PART No.	QUAM PART No.	
SP1	2 1/4"	PM	6-8Ω			

BATTERIES

ITEM No.	VOLTAGE	LAFAYETTE PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V			2U6		216		M-1604	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		LAFAYETTE PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	SD45			1N60	1N60	Detector (Pigtail)

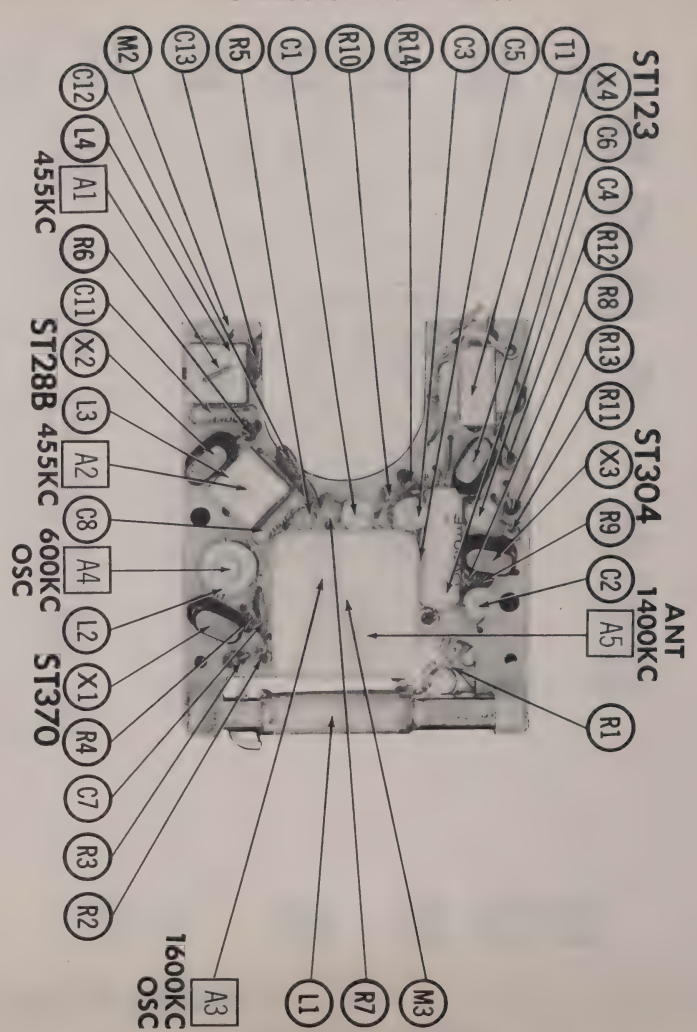
MISCELLANEOUS

ITEM No.	PART NAME	LAFAYETTE PART No.	NOTES
M3	Tuning Cap.		2 Gang

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW



PHOTOFACT® Folder with CIRCUITRACE®

OLSON
MODEL RA-347

OLSON
MODEL RA-347

OLSON
MODEL RA-347

TRADE NAME	Olson Model RA-347
SUPPLIER	Olson Radio Corp., 260 S. Forge Street, Akron 8, Ohio
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	9 Volts DC
RATING	5MA @ 9 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	550—1600KC
	10MA @ 9 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A3, A5...GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A4, A6..... GENERAL CEMENT #5000, 5003, 5066, 8271, 8272, 8276, 8277, 8290, 8609, 8722, 9150, 9298
WALSCO #2515, 2516, 2518, 2519, 2525, 2541

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1600KC	1600KC	"	A4	"
3.	"	600KC	600KC	"	A5	"
4.	"	1400KC	1400KC Signal.	"	A6	Adjust for maximum output while rocking tuning gang.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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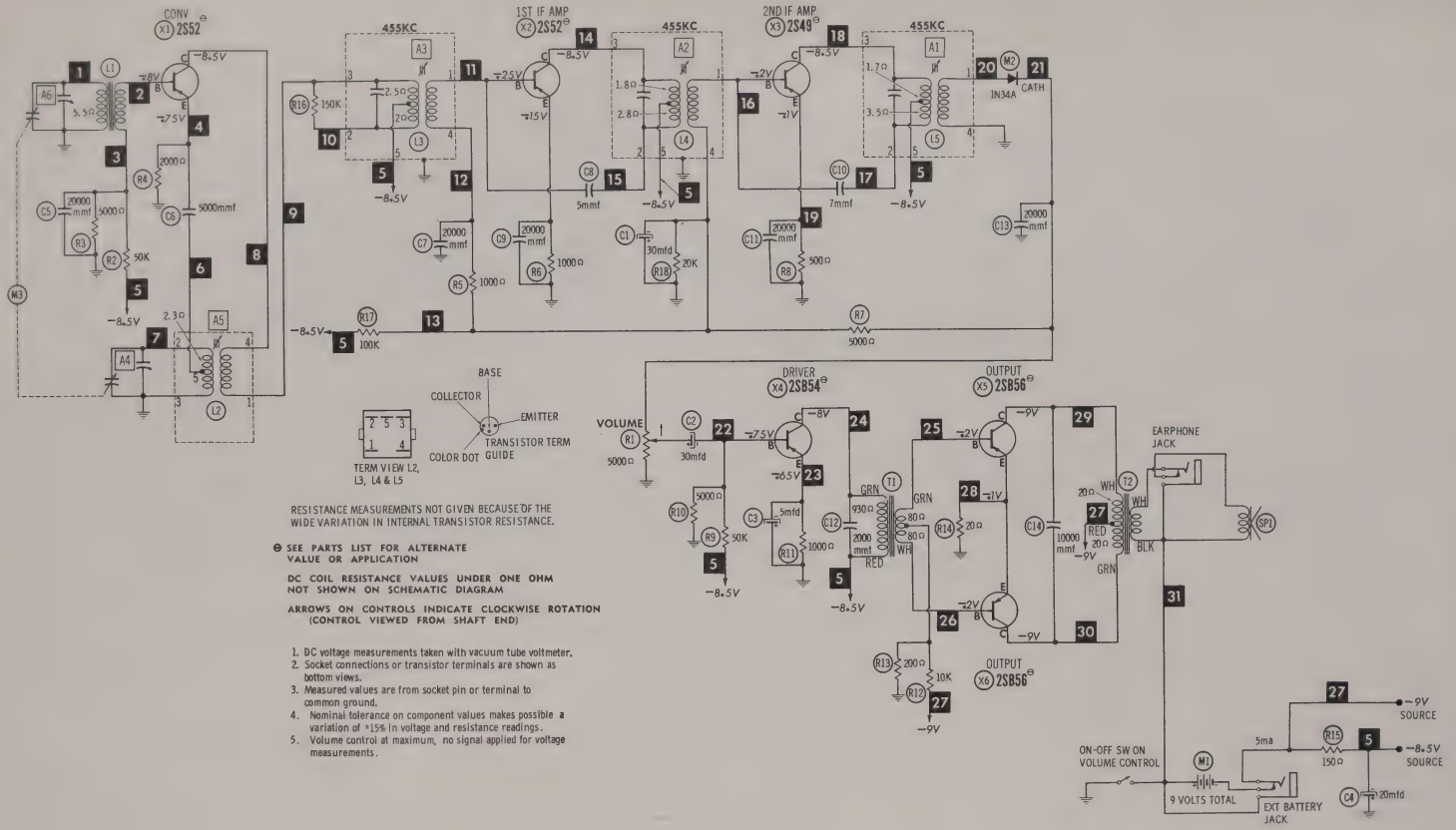

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE™

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OLSON
MODEL RA-347

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA: RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
X1	2S52①	Converter	2N412	2N486	2N412	PNP ① Alternate Type 2S30.
X2	2S52②	1st IF Amplifier	2N410	2N486	2N412	PNP ② Alternate Type 2S31.
X3	2S49②	2nd IF Amplifier	2N410			PNP ③ Alternate Type 2S32.
X4	2SB54③	Driver	2N406			PNP ④ Alternate Type 2S33.
X5	2SB56④	Output	2N408			PNP
X6	2SB56④	Output	2N408			PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	RATING: VOLT.	REPLACEMENT DATA: OLSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	20	10		PTT-10020	NLW20-15	TT15X20	MLV20-12	TE-1130	
C2	5	6		PTT-6005	NLW5-6	TT6X5	ML5-6	TE-1084	
C3	30	6		PTT-6030	NLW30-6	TT6X30	ML30-6	TE-1092	
C4	30	6		PTT-6030	NLW30-6	TT6X30	ML30-6	TE-1092	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	20000	(2000) †	C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C6	5000		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C7	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C8	5		NPO-SI 5	TCZ-4R7	LI0V5	CCTO-050	CNO-547	10TCC-V50
C9	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C10	7		NPO-SI 6.8	TCZ-6R8	LI0V7	CCTO-6R8	CNO-568	10TCC-V68
C11	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C12	2000		BPD-002	DM-202	BYA10D2	CCD-202	B-220	10TS-D20
C13	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C14	10000		C80V103AM	DA-103	H-05S1		TA-110	TG-S10

† Alternate Value.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: OLSON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	5000Ω	1/4	B16-214					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

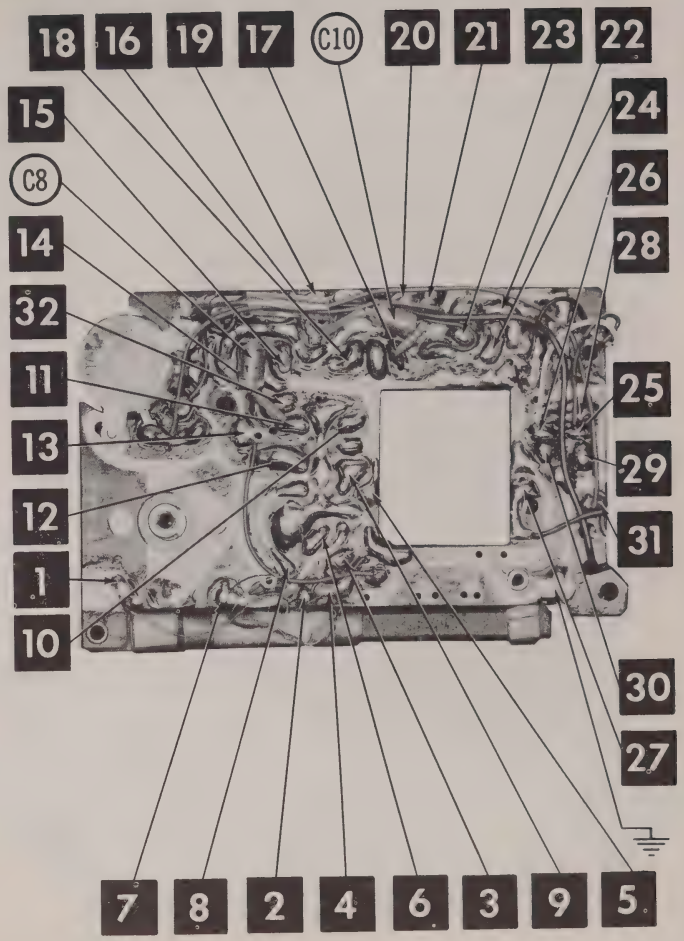
ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	50K			(10K) †
R3	5000Ω			(3000Ω) †
R4	2000Ω			
R5	1000Ω			
R6	1000Ω			
R7	5000Ω			
R8	500Ω			
R9	50K			
R10	5000Ω			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R11	1000Ω			
R12	10K			
R13	200Ω			
R14	20Ω			
R15	150Ω			Note 1
R16	150K			
R17	100K			
R18	20K			

† Alternate Value.
Note 1. Not used in some versions.

PRINTED BOARD

A Howard W. Sams CIRCUITRACE* Photo



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		OLSON PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Loopstick					
L2	Osc. Coil					
L3	1st IF Trans.					
L4	2nd IF Trans.					
L5	3rd IF Trans.					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	OLSON PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2.2	1				TR-7		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	OLSON PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	450Ω CT	6-8Ω	TRU236		TA-21①			① Use 8Ω Tap on secondary.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	OLSON PART No.	QUAM PART No.	
SP1	2 1/4"	PM	6-8Ω		22A06Z8	

BATTERIES

ITEM No.	VOLTAGE	OLSON PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V			2U6		216		M-1604	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		OLSON PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1N34A			1N34A	1N34A	Detector

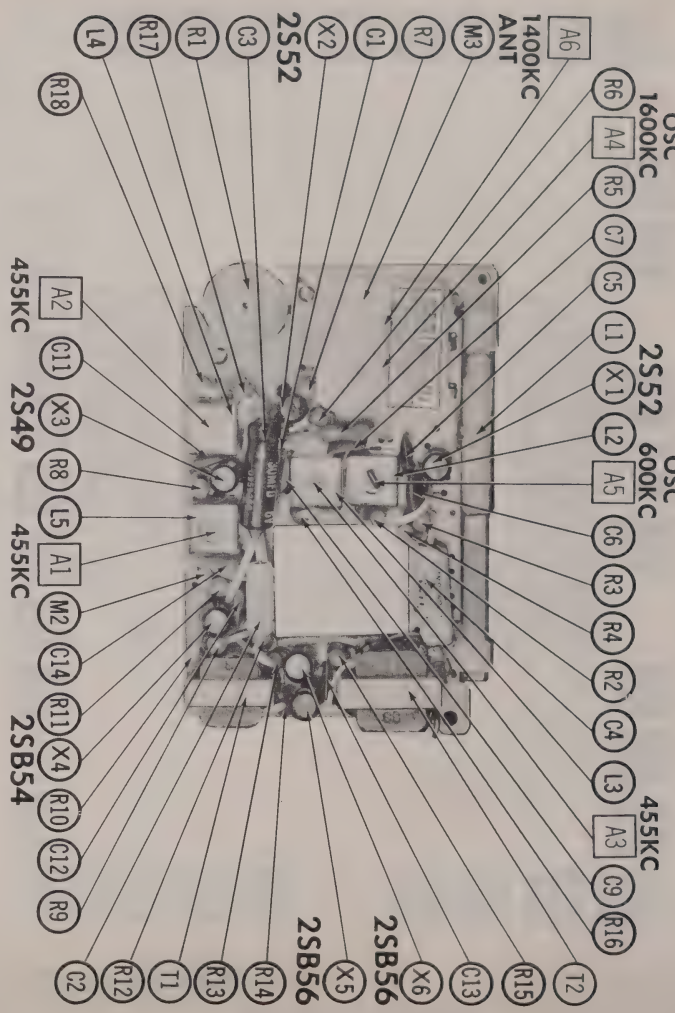
MISCELLANEOUS

ITEM No.	PART NAME	OLSON PART No.	NOTES
M3	Tuning Cap.		2 Gang

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

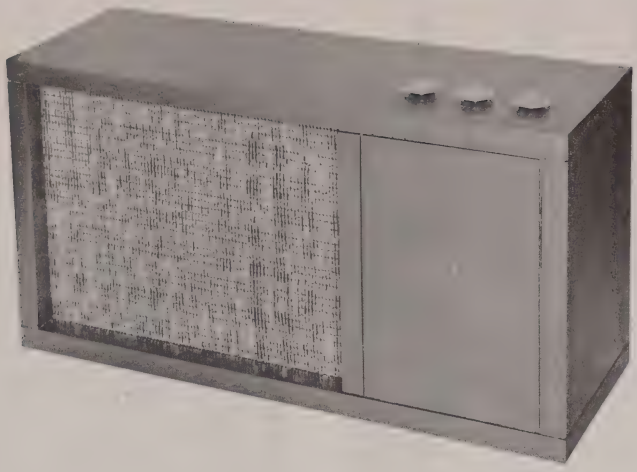
CHASSIS—TOP VIEW



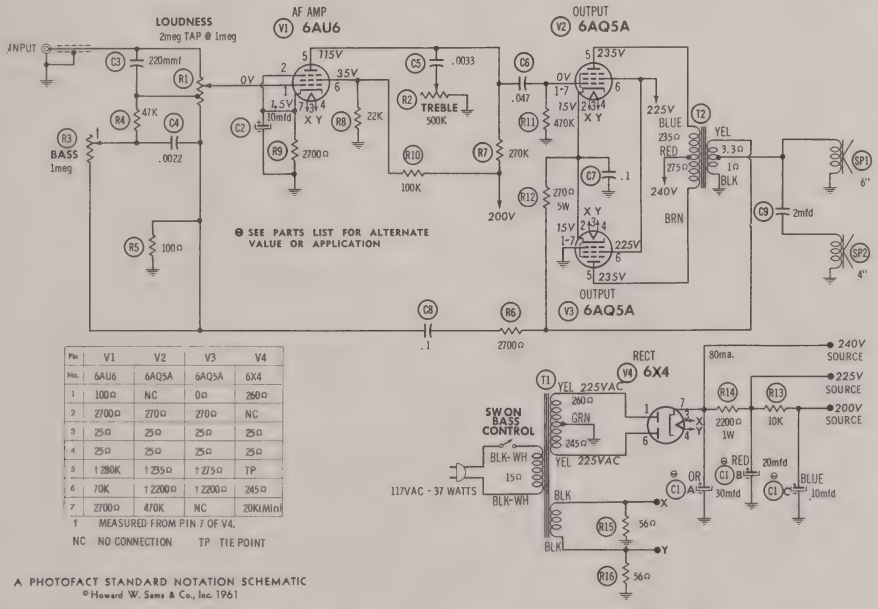
PHOTOFACT® Folder

PHILCO
MODEL SA-1005

PHILCO
MODEL SA-1005



TRADE NAME	Philco Model SA-1005
MANUFACTURER	Philco Corp., Tioga & C Streets, Philadelphia, Pa.
TYPE SET	AC Operated 4 Tube Audio Amplifier
POWER SUPPLY	105 — 120 Volts AC, 60 Cycles RATING 37 Watts, .36 Amp. @ 117 Volts AC



Pin No.	V1 6AU6	V2 6AQ5A	V3 6AQ5A	V4 6X4
1	100Ω	NC	0Ω	260Ω
2	2700Ω	270Ω	270Ω	NC
3	25Ω	25Ω	25Ω	25Ω
4	25Ω	25Ω	25Ω	25Ω
5	†280K	†235Ω	†275Ω	TP
6	70K	†2200Ω	†2200Ω	245Ω
7	2700Ω	470K	NC	20KMin.

† MEASURED FROM PIN 7 OF V4.
NC NO CONNECTION TP TIE POINT

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KX185

SET 522 FOLDER 9

PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC •			RAYTHEON • SYLVANIA •		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	AF Amplifier	6AU6	V3	Output	6AQ5A
V2	Output	6AQ5A	V4	Rectifier	6X4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	30	350		PR3-035	BBRQ0170.5	TCT3764	CDB-Q-1003	TVA-4742	Note 1
B	20	350							
C	10	350							
C2	10	25	30-2417-49	PRS1250	BBR10-25	TC22	TD-10-25	TVA-1204	

Note 1. In some versions C1A may be 40mfd (C1 Part #30-2575-47).

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	220		SI 220	D6-221	L10T22	CCD-221	B-322	10TS-T22
C4	.0022 200V		P288N-0022	D6-222	CUB6D22	6DP-1-222	GEM-6222	6TM-D22
C5	.0033 400V		P288N-0033	D6-332	CUB6D33	6DP-1-332	GEM-6233	6TM-D33
C6	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C7	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C8	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C9	2.0mfd 100V							

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	2meg	½	33-5535-46	BT-82	A47F3-2meg	Q18-139X	UT-451	Loudness
	1meg Tap							
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R2A	500K	½	33-5587-31	B-60	A47-500K-Z	Q13-133	U48	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	1meg	½	33-5588-12	B-70-S	A47-1meg-Z	Q13-137	U53	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	Power Off-On

RESISTORS

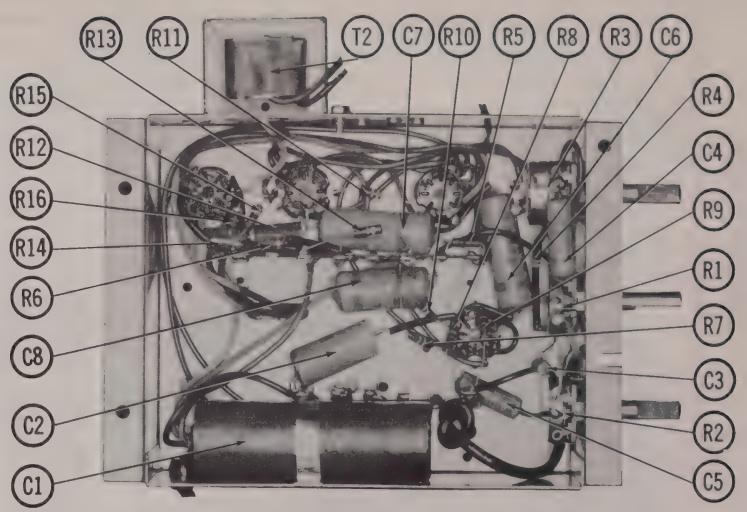
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R4	47K				R11	470K			
R5	100Ω				R12	270Ω 5W	PW5-270Ω	5W-SQ-270Ω	
R6	2700Ω				R13	10K			
R7	270K				R14	2200Ω 1W			
R8	22K				R15	56Ω			
R9	2700Ω				R16	56Ω			
R10	100K								

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	PHILCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V Ⓐ .36A	450VCT Ⓐ .080A	6.3V Ⓐ 1.8A	32-8850-1		PC-8419①	24R12U①		① Drill New Mounting Holes.

CHASSIS—BOTTOM VIEW



TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	PHILCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6200Ω CT	8-10Ω Taps Ⓐ 6-8Ω	32-8939-1					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	PHILCO PART No.	QUAM PART No.	
SP1	6"	PM	6-8Ω	36-1680-8	6A2IZ8	
SP2	4"	PM	14-16Ω	36-1673-11	4A15Z16.4	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	54-6421-1	3 Used

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder

**SILVERTONE MODELS 1232, 1234
(CH. 528.58140, 528.59720, 528.59890)**

SILVERTONE MODELS 1232, 1234
(CH. 528.58140, 528.59720, 528.59890)

SILVERTONE MODELS 1232, 1234
(CH. 528.58140, 528.59720, 528.59890)

GENERAL INFORMATION

Model 1232 consists of a 2-speed tape deck 528.58140 and amplifier 528.59720 to produce or play back quarter-or-half-track monaural recordings. A stereo preamplifier is included and when connected to an external amplifier, prerecorded quarter-or-half-track stereo tapes may be played back.

Model 1234 consists of a 2-speed tape deck 528.58140, amplifiers 528.59720 and 528.59890 to produce and play back quarter-or-half-track monaural recordings and play back prerecorded quarter-or-half-track stereo tapes.

Monaural recordings can be made from a radio, phonograph, or T. V. in addition to those made directly from the microphone.

The two tape speeds are 3 3/4 and 7 1/2 ips. The recording time for each track is as follows:

Reel Size	3 3/4 ips	7 1/2 ips
5" (600 ft.)	1/2 hour	1/4 hour
5" (900 ft.)	3/4 hour	23 min.
7" (1200 ft.)	1 hour	1/2 hour
7" (1800 ft.)	1 1/2 hours	3/4 hour

This recorder is to be connected to an outlet supplying 110-120 volts, 60 cycles AC only.

Supplied By:

Sears, Roebuck and Company
925 S. Homan Avenue
Chicago, Illinois

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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CQ457

SET 522 FOLDER 10

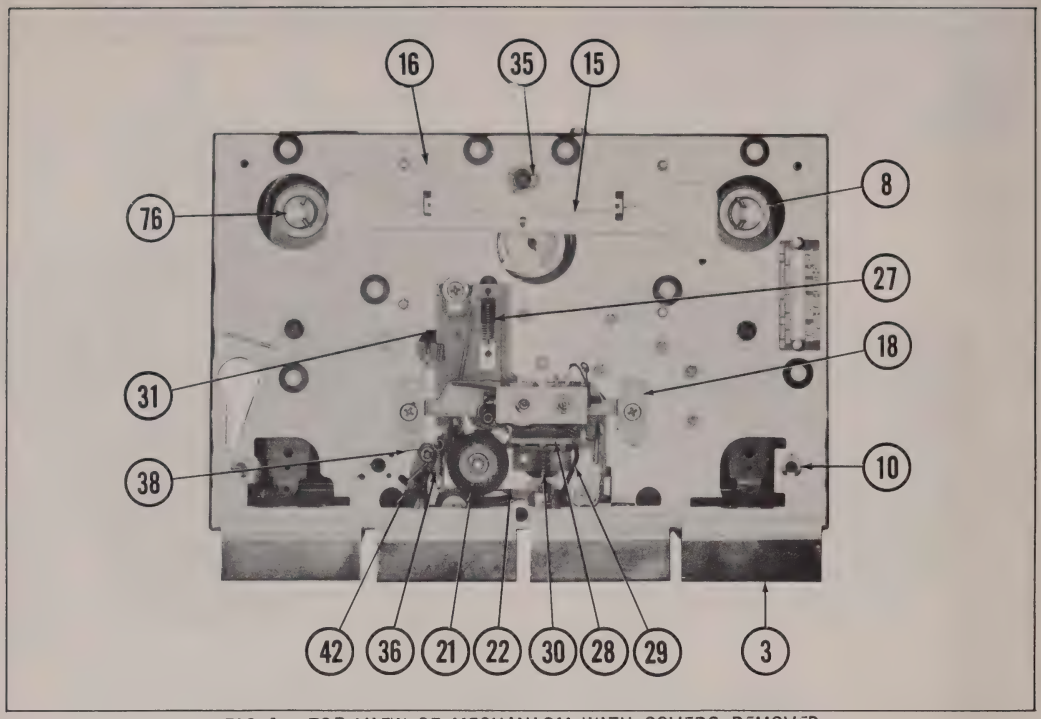


FIG.1 TOP VIEW OF MECHANISM WITH COVERS REMOVED

FUNCTION OF CONTROLS AND JACKS

On/Off Function

Turning this control clockwise turns the recorder on and places the amplifier in the play position. When used in conjunction with the Record Lock, the amplifier is placed in the record position.

Record Lock

To place the amplifier in the record position, lift the Record Lock and simultaneously turn the On/Off Function control fully clockwise.

Tone

This control regulates the tonal response of the main and stereo channels during playback only. Turning the control clockwise emphasizes the high notes and counterclockwise emphasizes the low notes.

Main Volume

The inner knob regulates the volume level of the main unit for recording and playback. Turning the control clockwise increases the volume and counterclockwise decreases the volume.

Stereo Volume

The outer knob of the two volume controls regulates the volume of the stereo channel for stereo playback only. Turning the knob clockwise increases the volume; counterclockwise decreases the volume.

Track Selector

This is a three-position switch which selects the portion of the tape which monaural sound will be recorded on, or on which prerecorded monaural or stereo sound will be played back. Positions "A1B1" and "A2B2" are for monaural record or playback; "Stereo" is for playing back prerecorded two-or four-track stereo tape.

Speed

Raise knob to the Up position for 3 3/4 ips and to the Down position for 7 1/2 ips.

CAUTION: Do not operate the speed control unless the motor is running.

Run

When this control is depressed, the tape is started in motion for record or playback.

Stop

This control stops the tape movement and releases the Run control when depressed.

IMPORTANT: Always depress the Stop control when going from one mode of operation to another.

Fast Forward

The tape will advance at a rapid speed to the desired spot on the tape when this control is depressed.

Fast Rewind

The tape will rewind at a rapid speed when this control is depressed.

Mike

When recording with a microphone, this input is used.

Radio-Phono

This input is used when recording directly from a radio, phonograph, or television receiver.

External Speaker

This input is used for connecting an external amplifier or speaker to the record, or headphones for monitoring recordings that are being made.

Stereo Output

This output is for connecting an external amplifier speaker unit to the recorder for the second channel for playback of stereo tapes.

Push Off/On Switch

Depressing this button turns the External Amplifier-Speaker unit on and off.

Recording Level Indicator

This indicates the correct level to set the volume control during a recording. It should be set so it flashes occasionally on the loudest passages.

OPERATING INSTRUCTIONS

Threading the Tape

1. Depress the Stop control.
2. Place a reel of tape on the right-hand (supply) spindle (76).
3. Place an empty reel on the left-hand (take-up) spindle (76).
4. Rotate both reels until they are seated over the spindle key.
5. Unwind approximately 12 inches of tape from the right-hand reel and insert it into the tape slot. Make sure the dull-coated side faces the rear of the recorder.
6. Insert the free end of the tape into the slot of the left-hand reel. Turn the reel several turns to secure the tape to the reel and to take all slack up between reels.

Microphone Recording — Half-Track

1. Plug the microphone into the "Mike" jack.
2. Turn the Function control to the "Play" position and then pull the Record Lock Button up and simultaneously turn the Function control to the right until a click is heard; then release both controls.
3. Set the Main Volume control so the Record Indicator flashes on the loudest passages.
4. Set the Speed control for the desired speed. Up for 3 3/4 ips and Down for 7 1/2 ips.
5. Set the Track Selector to A1B1 position.
6. Hold the microphone 12 to 18 inches from your mouth and speak in a normal manner to set the Recording Level Indicator for correct volume.
7. Depress the Run control.

Microphone Recording—Quarter-Track

1. Use same procedure as for Microphone Recording — Half Track with the following addition.
2. After a reel of tape has been recorded, reverse the reels, rethread the tape and record another track. At end of reel, turn reel over, rethread the tape, set Track Selector to A2B2 position and follow the preceding procedure.

Pickup from a Phonograph, Radio or Television

1. Through a Direct Connection to the Volume Control. — Connect a cable across the volume control and plug the other end into the "Radio-Phono" jack of the recorder. To record, use the same procedure as in "Microphone Recording".
2. Through a Direct Connection to the Speaker. — Connect a cable across the voice coil of the unit from which the recording is being made. Insert the plug into the "Radio-Phono" jack. Set the volume and tone controls of the sound source to the desired listening level. To record, use the same procedure as in "Microphone Recording".

Pickup from the Microphone through the Loudspeaker

1. Place the microphone about 6 to 12 inches in front of the loudspeaker.
2. Adjust the volume control of the sound source to a desired listening level.
3. Set the tone control to treble or high.
4. Set the recording level and record as under "Microphone Recording Half-Track or Quarter-Track".

Monaural Playback — Half-Track

1. Thread tape as under "Threading the Tape".

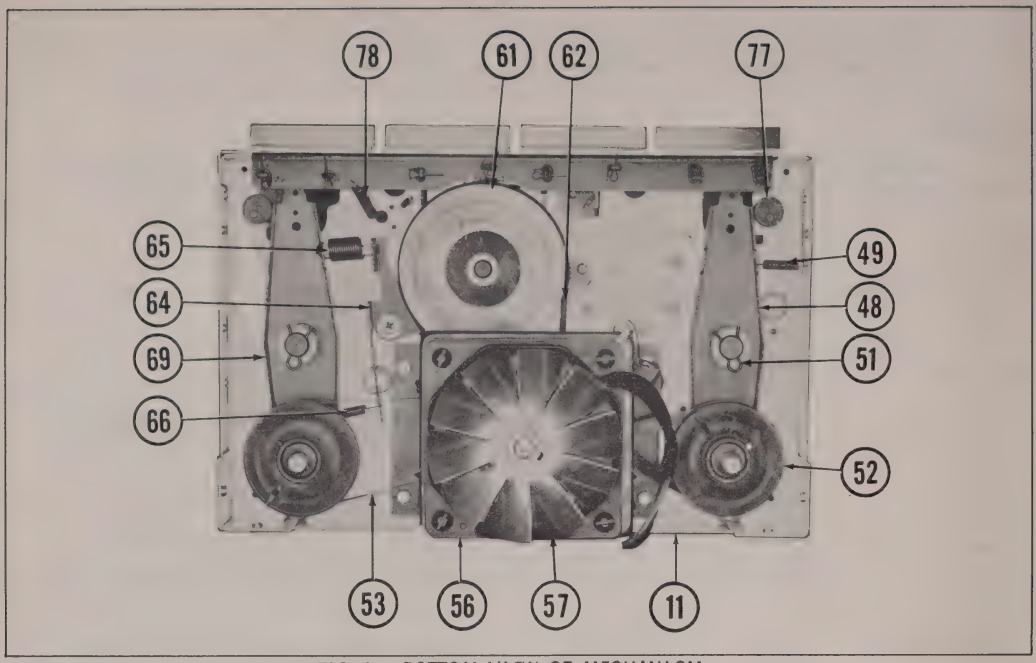


FIG.2 BOTTOM VIEW OF MECHANISM

2. Turn the Function Selector to Play position.
3. Adjust the Main Volume to desired level.
4. Set speed control in Up position for 3 3/4 ips or Down for 7 1/2 ips depending on the speed the recording was made.
5. Set Track Selector in A1B1 position.
6. Depress the Run key.
7. After all tape is wound onto the takeup reel, remove the takeup reel, turn it over and place on supply spindle. Rethread the tape and follow the above procedure to play the second track.

Monaural Playback – Quarter-Track

1. Thread tape as under "Threading the Tape".
2. Turn the Function Selector to Play position.
3. Adjust Main Volume to desired level.
4. Set speed control in Up position for 3 3/4 ips or Down for 7 1/2 ips depending on the speed the recording was made.
5. Set Track Selector in A1B1 position.
6. Depress the Run key.
7. After all tape is wound onto the takeup reel, remove the takeup reel, turn it over and place on supply spindle. Rethread the tape and follow the above procedure for playing the second track.
8. After all the tape is wound onto the takeup reel, remove the takeup reel and place it on the supply spindle, set Track Selector to A2B2 position. Thread the tape and follow the above procedure for playing tracks three and four but leave the Track Selector in the A2B2 position.

Stereo Playback – Two-Track

1. Turn Function Selector to Play position.
2. Turn Main Volume to desired listening level.
3. Turn Stereo Volume to desired listening level.
4. Set Speed Selector to the speed at which the recording was made.
5. Set Track Selector to Stereo.
6. Connect the Stereo Speaker System to the Stereo Output socket on the tape recorder.
7. Depress the Run key.
8. Turn Tone control to the right for treble and to left for bass.

Stereo Playback – Four-Track

Use same procedure used in "Stereo Playback—Two-Track" with the following addition.

1. When all the tape is wound onto the takeup reel, remove the reel, turn it over, and place it on the supply spindle. Thread the tape and proceed as outlined in "Stereo Playback – Half-Track".

Fast Rewind

To rewind the tape at end of reel or to a desired section, depress the Fast Rewind key and hold until the desired section is reached and then release.

Fast Forward

To advance the tape at a rapid speed, depress the Fast Forward key and hold until the desired section is reached and then release.

To Erase a Recording

In record position, any recording on the tape is automatically erased before a new recording is made. Should it be desired to erase a recording without recording new material, follow the normal recording procedure but set the volume control to the full counter-clockwise position.

To Edit and Splice Tape

NOTE: It is impossible to edit and splice one track of a two-track tape without affecting the other. Recordings to be edited should be limited to one-track tapes.

1. Tape may be edited by cutting out unwanted portions, or by joining selections into another sequence. Announcements can be inserted between selections, etc. Unused tape can be spliced for reuse.
2. For best results, cut tape at a slight diagonal, butt ends together and fasten on the glossy side with splicing tape. Trim off any excessive width.

DISASSEMBLY

To Remove Recorder from the Case

1. Remove all control knobs.
2. Remove mechanism cover (4).
3. Remove head cover (13).
4. Remove four screws from top plate (5) and lift top plate off.
5. Remove two screws from the amplifier control excutcheon and remove the escutcheon.
6. Remove two screws from the speaker grill and remove it.
7. Remove two screws on the bottom of the case and two screws from the front of the case.
8. Lift the recorder from the case.
9. To reassemble, reverse the foregoing procedure.

To Remove Amplifier from Tape Transport

1. Unplug all connecting leads.
2. Remove two screws on each side of recorder.
3. Lift tape transport up and away from the amplifier.
4. To reassemble, reverse the foregoing procedure.

TROUBLE CHART

Symptom	Cause	Remedy
Runs slow in Fast Forward position.	1. Fast Forward drive belt (53) stretched. 2. Lubricant on Fast Forward drive belt (53) causing it to slip on the pulley.	1. Replace Fast Forward drive belt (53). 2. Replace Fast Forward drive belt (53).
No Fast Forward.	1. Fast Forward drive belt (53) broken. 2. Fast Forward spindle pulley (52) loose on its shaft.	1. Replace Fast Forward drive belt (53). 2. Tighten set screw (67).
No drive in Rewind position.	1. Rewind drive belt (53) broken. 2. Rewind spindle pulley (52) loose on its shaft.	1. Replace rewind drive belt (53). 2. Tighten set screw (67).
Motor (56) will not run.	1. Motor (56) defective. 2. Loose connection.	1. Replace motor (56). 2. Check motor leads for cold solder joints.
Wow or Flutter.	1. Play-record and erase head assembly (18), pressure pads (28), or tape guide (14) dirty. 2. Motor pulley, flywheel (61), or pressure roller (21) coated with foreign matter.	1. Clean these parts with a soft cloth and alcohol. 2. Clean the surface of these parts with a cloth dampened with alcohol.

(Continued on page 8)

CLEANING

The record head, erase head, capstan, and pressure roller should be cleaned occasionally to remove the tape residue which is worn off the tape as it passes these parts. Use a soft cloth and alcohol to remove the residue.

LUBRICATION

All rotating parts are provided with oilite bearings and are lubricated before leaving the factory. Under normal use, no lubrication is required for a long period of time. When lubrication is necessary, use a good grade of oil sparingly.

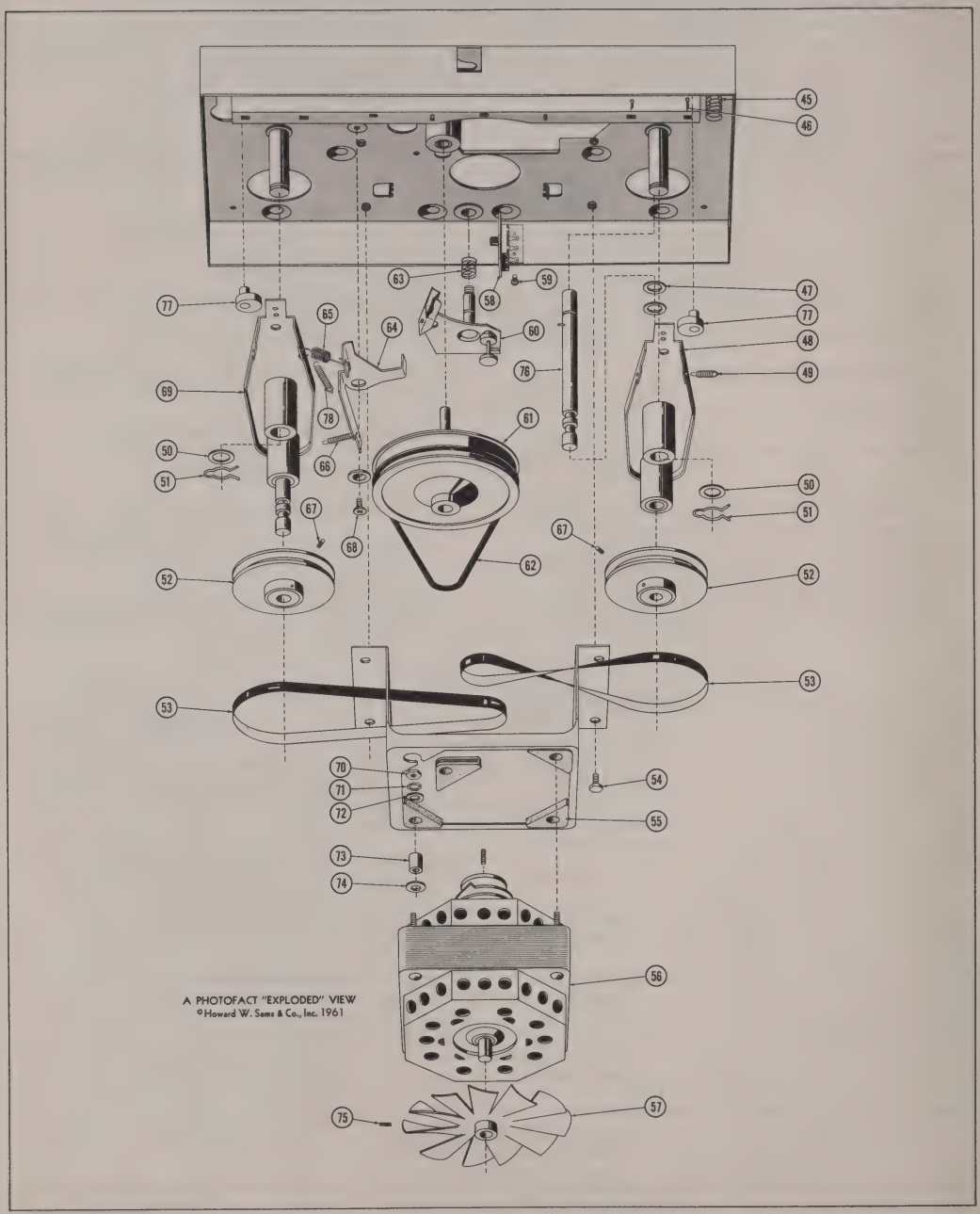


FIG. 3A EXPLODED VIEW OF MECHANISM

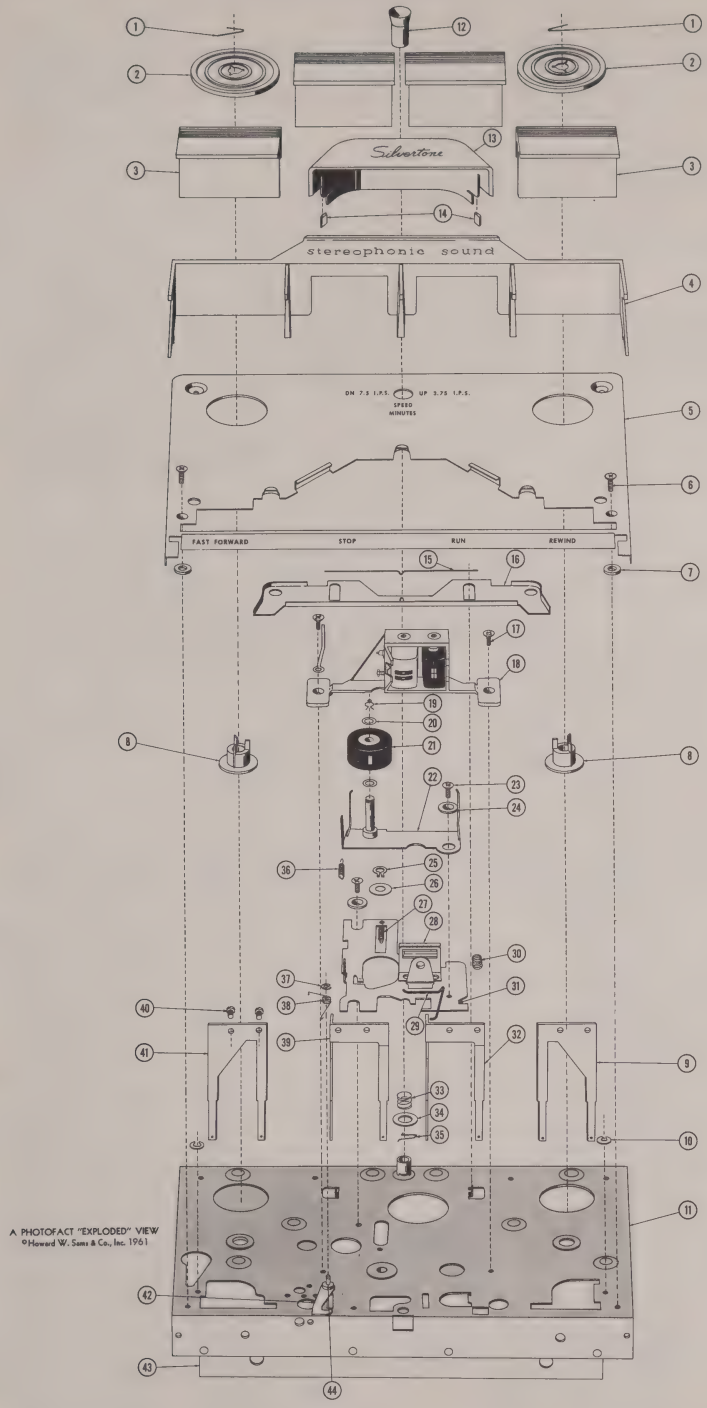


FIG.3B EXPLODED VIEW OF MECHANISM

TROUBLE CHART (CONT'D)

Symptom	Cause	Remedy
	3. Rotating parts binding.	3. Clean any binding rotating part and lubricate.
	4. Pressure roller (21) has a flat spot on it.	4. Replace pressure roller (21).
	5. Tape defective.	5. Replace the tape.
Incomplete or no erase.	1. Erase head defective.	1. Replace.
	2. Defective erase head circuit.	2. Check circuit components.
Will not lock in Run position.	1. Slide lock pawl (42) binding.	1. Free slide lock pawl (42) and lubricate so it will pivot freely.
	2. Torsion spring (38) broken, disconnected, or has lost its tension.	2. If torsion spring (38) is broken or lost its tension, replace. If disconnected, reconnect.
Brake plate (16) does not engage the wind or rewind hubs.	1. Brake plate spring (16) broken.	1. Replace brake plate spring (16).
Pressure plate assembly (31) does not return to its neutral position when the Stop button is depressed.	1. Slide return spring (27) broken or disconnected.	1. Connect or replace slide return spring (27).
Pressure roller (21) contacts the capstan intermittently.	1. Pressure roller spring (36) missing.	1. Replace pressure roller spring (36).

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	22-110-0	Reel Plate Retainer	34	58-288	Flat Rubber Washer (1/2" x 1/4" x 1/16")
2	84-9288	Reel Plate Holder Ass'y.			
3	52-1492-0	Push Button	35	70-256-0	Plunger Detent Spring
4	21-685-0	Mechanism Cover	36	70-381-0	Pressure Roller Spring
5	31-625-0	Top Plate	37	22-74-1	"E" Retainer
6	57-604631	Mach. Screw(#6-32 x 1/4 Phil. Pan. Hd.)	38	70-452-0	Torsion Spring
			39	39-285-3	Stop Plunger
7	58-262	Flatwasher	40	97-915	Screw (#6-32 x 3/8" Phil. Pan. Hd.)
8		Reel Plate Holder			
9	39-282-3	Rewind Plunger	41	39-283-3	Fast Forward Plunger
10	22-46-1	"C" Washer	42	22-171-4	Slide Lock Pawl
11	84-9282	Motorboard Ass'y.	43	11-1870	Plunger Guide Bracket
12	52-1331-0	Speed Control Knob	44	77-143-1	Shoulder Stud
13	21-656-0	Head Cover	45	70-474-0	Plunger Spring
14	29-117-1	Tape Guide	46	22-99-5	Cotter Pin
15	70-249-0	Brake Plate Spring	47	58-280	Flat Washer
16	29-112-0	Brake Plate	48	84-11954	Feed Reel Arm Ass'y.
17	57-604221	Mach. Screw (#6-32 x 1/4 Phil. Ft. Hd.)	49	70-252-0	Brake Spring
			50	58-289	Flatwasher
18	84-7866	Head and Bracket Ass'y.	51	22-42-1	Hairpin Retainer
19	22-40-1	Hairpin Retainer	52	84-6726	Spindle Pulley Ass'y.
20	58-282	Flatwasher	53*	*39-40-5	*Drive Belt
21	39-37-5	Pressure Roller	54	57-803271	Screw (#8-32 x 3/16 Hex Hd.)
22	84-11962	Pressure Roller Arm Ass'y.	55	37-60-3	Rubber Grommet
23	57-604221	Mach. Screw (#6-32 x 1/4 Phil. Ft. Hd.)	56	84-9250	Motor and Bracket Ass'y.
			57	84-4240	Fan and Hub Ass'y.
24	72-135	Button Slide	58	69-355-0	Equalizer Switch
25	22-37-1	Retainer Ring	59	57-604287	Screw (6-32 x 1/4 Hex Hd.)
26	58-372	Capstan Washer	60	84-11989	Belt Transfer Ass'y.
27	70-251-0	Slide Return Spring	61	84-9316	Capstan Shaft and Flywheel Ass'y.
28	84-9071	Pressure Shoe and Pad Ass'y.	62*	*62-79-0	Flywheel Drive Belt
29	22-180-4	Slide Operating Link	63	70-259-0	Compression Spring
30	70-253-0	Pressure Shoe Spring	64	22-13-4	Take-up Lever
31	84-9308	Pressure Plate Ass'y.	65	70-250-0	Take-up Spring
32	39-284-3	Run Plunger	66	70-257-0	Left Brake Spring
33	70-256-0	Compression Spring	67	97-577	Set Screw

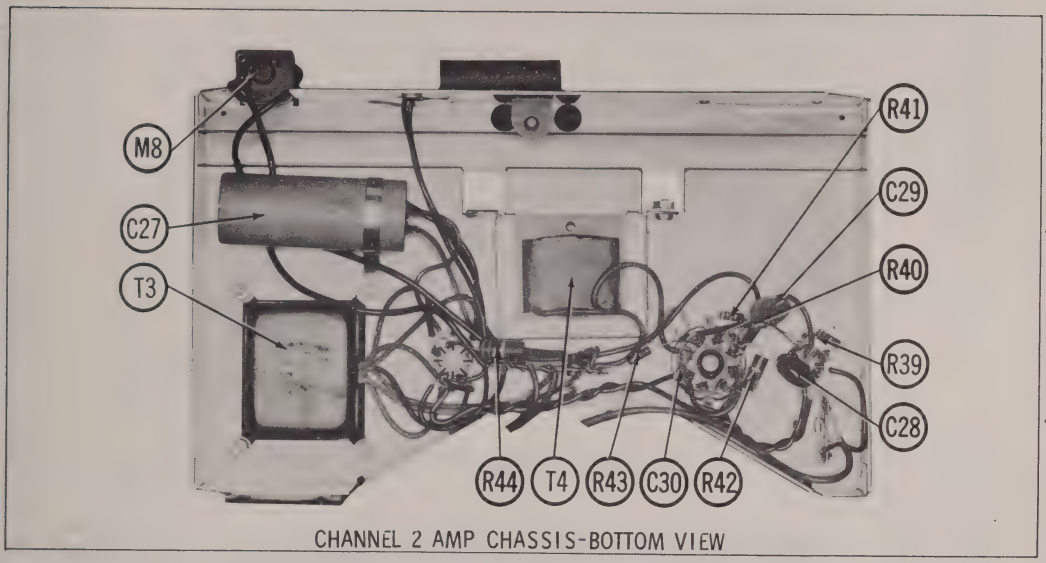
MECHANICAL PARTS LIST (CONT'D)

Ref. No.	Part No.	Description
68	57-604221	Mach. Screw (#6-32 x 1/4 Phil. Flt. Hd.)
69	84-11955	Take-up Reel Ass'y.
70	56-124	Hex Nut
71	58-473	#10 Ext. Lockwasher
72	58-187	Flatwasher (7/17 x .203 x .031)

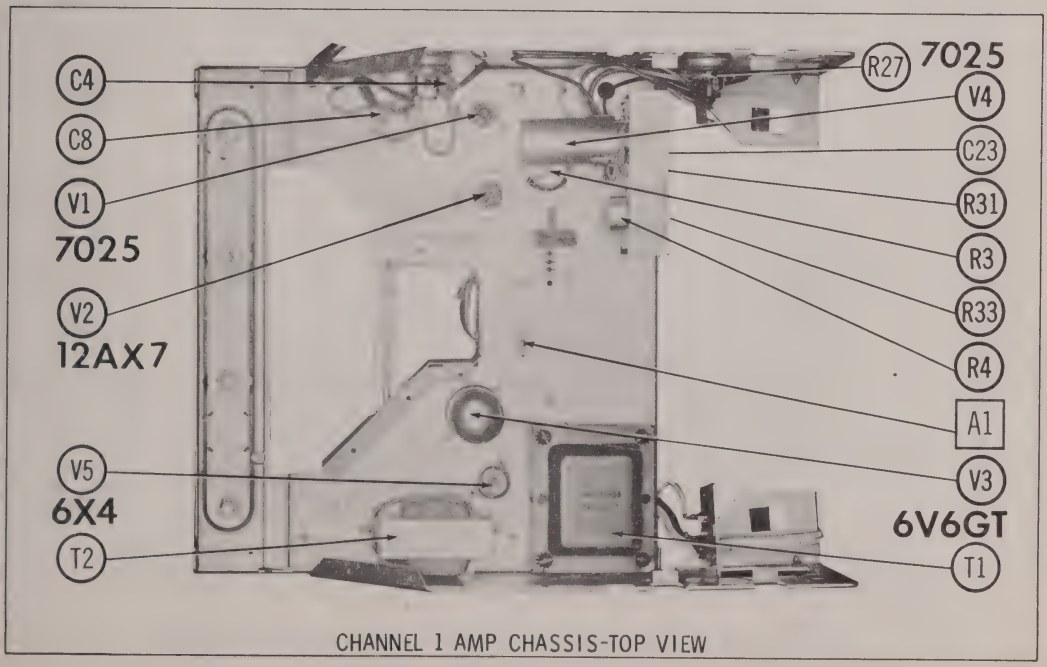
* Drive Belt, WALSCO Part No. 1409-03

Ref. No.	Part No.	Description
73	77-67-0	Grommet Insert Spacer
74	58-187	Flatwasher (7/17 x .203 x .031)
75	97-619	Set Screw (#8-32 x 3/16 Allen Hd.)
76	84-9310	Spindle Ass'y.
77	84-11460	Cam and Stud Ass'y.

* Flywheel Drive Belt, WALSCO Part No. 1410-10

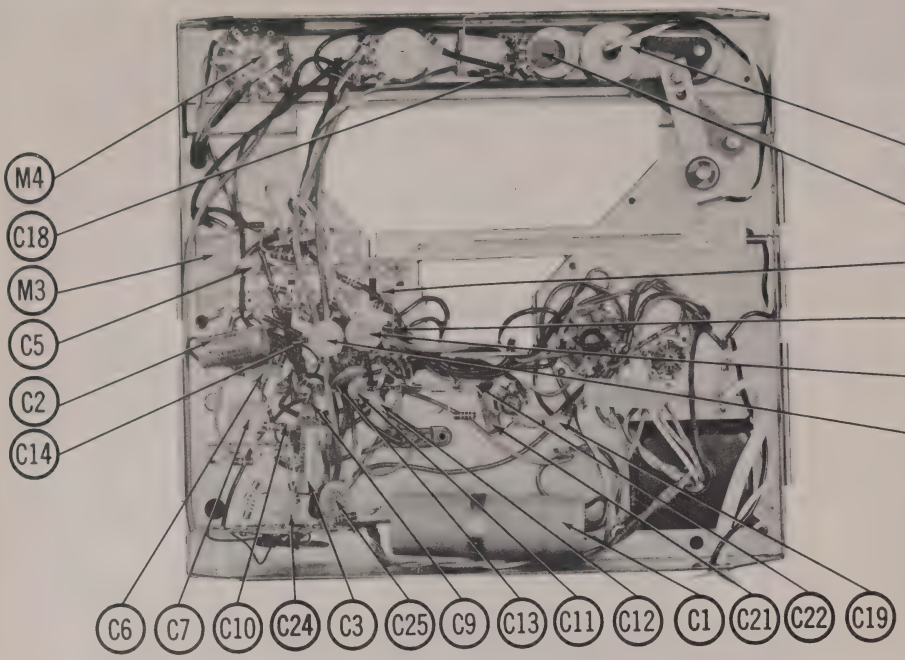


CHANNEL 2 AMP CHASSIS-BOTTOM VIEW

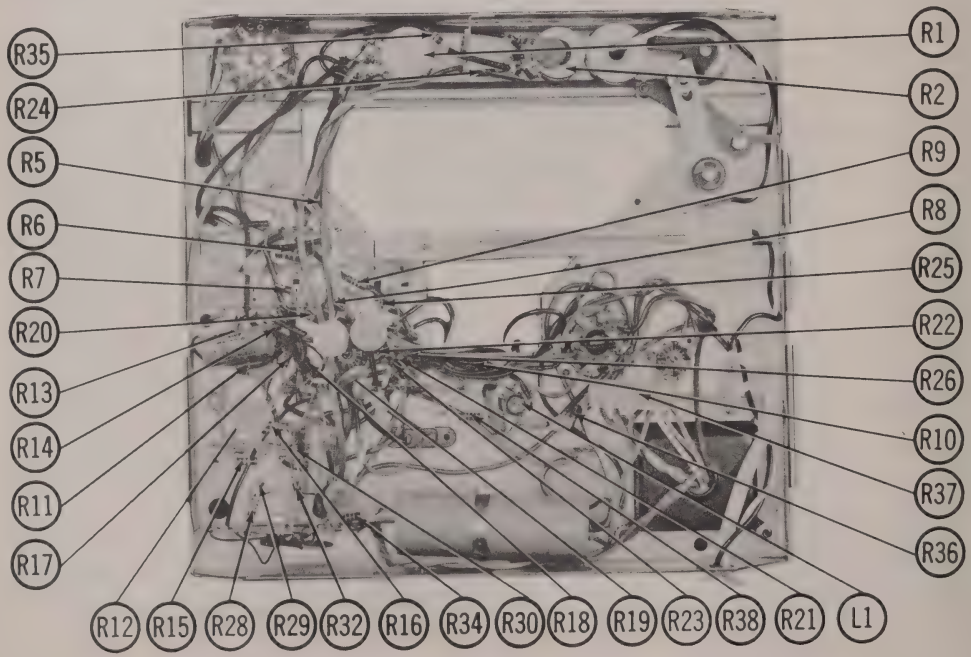


CHANNEL 1 AMP CHASSIS-TOP VIEW

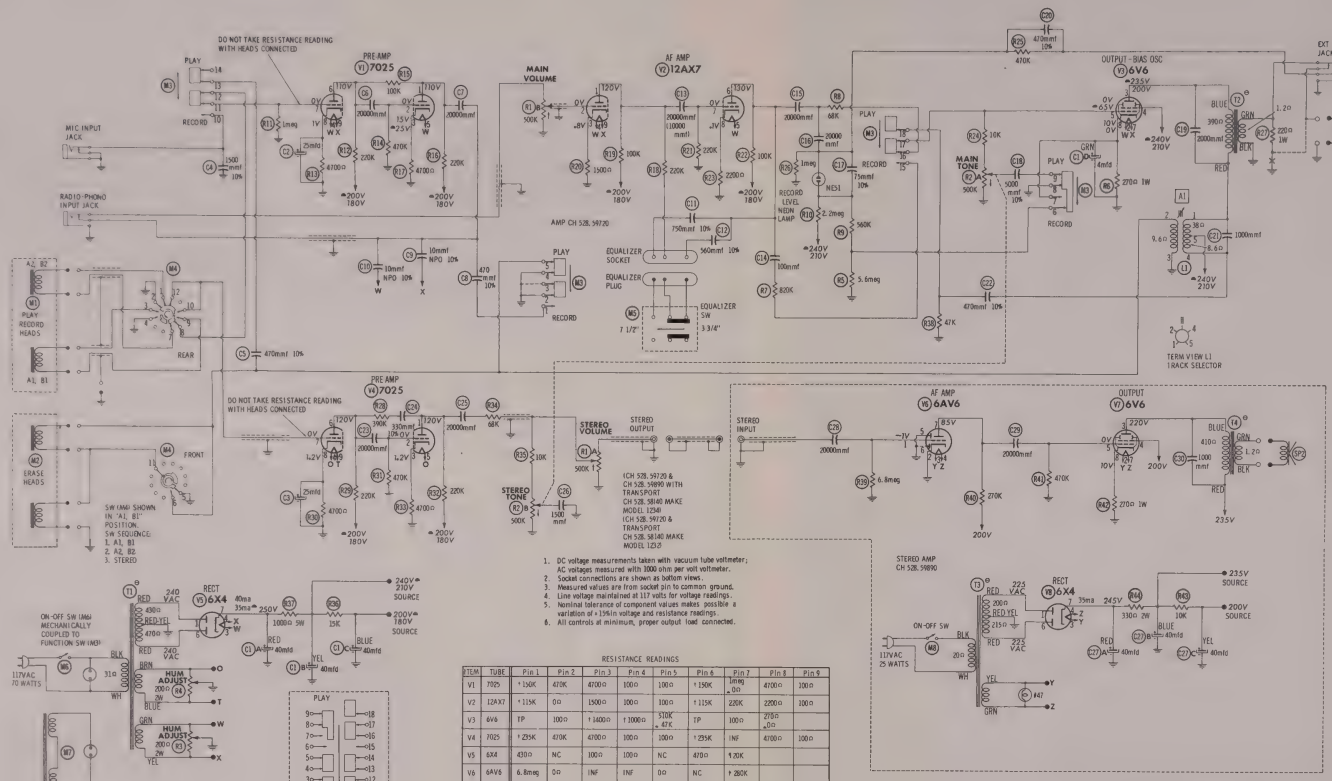
FOLDER 10



CHANNEL 1 AMP CHASSIS BOTTOM VIEW-CAPACITOR & MISC. IDENT.



CHANNEL 1 AMP CHASSIS BOTTOM VIEW-RESISTOR & INDUCTOR IDENT.



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	7025	† 150K	470K	4700Ω	100Ω	100Ω	† 150K	1meg ¶	4700Ω	100Ω
V2	12AX7	† 115K	0Ω	1500Ω	100Ω	100Ω	† 115K	220K	2200Ω	100Ω
V3	6V6	TP	100Ω	† 1400Ω	† 1000Ω	510K ± 47K	TP	100Ω	270Ω ¶	
V4	7025	† 235K	470K	4700Ω	100Ω	100Ω	† 235K	INF	4700Ω	100Ω
V5	6X4	430Ω	NC	100Ω	100Ω	NC	470Ω	¶ 20K		
V6	6AV6	6.8meg	0Ω	INF	INF	0Ω	NC	† 260K		
V7	6V6	NC	INF	† 740Ω	† 10K	470K	TP	INF	270Ω	
V8	6X4	260Ω	NC	INF	INF	NC	215Ω	¶ 60K		

ALL MEASUREMENTS MADE IN "STEREO PLAY" POSITION LESS DECK UNLESS OTHERWISE DESIGNATED.
← MEASURED IN "RECORD" POSITION.
† MEASURED FROM PIN 7 OF V5.
† MEASURED FROM PIN 7 OF V8.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
NC NO CONNECTION
TP TIE POINT

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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SILVERTONE MODELS 1232, 1234
(CH. 528.58140, 528.59720, 528.59890)

CHANNEL 2 AMP PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V6 V7	AF Amplifier Output	6AV6 6V6GT	V8	Rectifier	6X4

ELECTROLYTIC CAPACITORS

ITEM No	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C27A	40	300	18-27-2	PR4-200	BBRT0185	WQ795	CDBQ-4422	TVA8-3745*	
B	40	300							
C	40	300							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C28	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C29	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C30	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R39	6.8meg				R42	270Ω 1W			
R40	270K				R43	10K			
R41	470K				R44	330Ω 2W			

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	SILVERTONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T3	117V Ⓐ .23A	450VCT Ⓐ .035A DC	6.3V Ⓐ 1.5A	80-46-0A ①		PM8418		R106B ②	①Alternate Part # 80-46-0. ② Tap CT on 6.3V and 5V Windings.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SILVERTONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T4	5000Ω	6-8Ω	80-130-1A ①			22S88	S-56Z	① Alternate Part #80-130-1

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SILVERTONE PART No.	QUAM PART No.	
SP2	5"x 7"	PM	6-8Ω	33-477-4	57A1Z8	

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M8	Switch	69-333-0	Off-On (Push Type)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	52-1378-0	Volume
Knob	52-1375-0	Indicator, Volume
Knob	52-1377-0	Tone, Track Selector
Knob	52-1376-0	Indicator, Tone, Track Selector
Knob	52-1467-0	Record Lockout
Knob	52-1445-0	Function Selector
Knob	52-1331-0	Speed Control
Cabinet	42-39-5	Model 1234
Cabinet	42-40-5	Model 1232

CHANNEL 1 AMP PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

ITEM No.	USE	TYPE
V1	Preamplifier	7025
V2	AF Amplifier	12AX7
V3	Output-Bias Osc.	6V6GT
V4	Stereo Preamplifier	7025
V5	Rectifier	6X4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	40	350	18-28-2			WQ795		TVAS-3475*	
B	40	300				TT50X4		TVA-1402	
C	40	300							
D	4	25							
C2	25	25	18-52-5	PRS1260	BBR25-25	TC26	TD-25-25	TVA-1205	
C3	25	25	18-52-5	PRS1260	BBR25-25	TC26	TD-25-25	TVA-1205	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	1500 10%		DI-1500	DD-152	PM6D15	CCD-152	GP215	10TS-D15
C5	470 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C6	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C7	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C8	470 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C9	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C10	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C11	750 10%		DI-750	DD-751	5R5T75	CCD-751	GP375	10TS-T75
C12	560 10%		DI-560	DD-561	5R5T56	CCD-561	GP356	10TS-T56
C13	20000	(10000) †	BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C14	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C15	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C16	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C17	75 10%		NPO-DI 75	DD-750	L10Q75	CCD-750	GP475	10TS-Q75
C18	5000 10%		DI-5000		PM6D5	CCD-502	JL-250	10TS-D50
C19	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C20	470 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C21	1000		1468-001		5W5D1	CM-19B-102M	MC255	1FM-21
C22	470 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C23	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C24	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C25	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C26	1500		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15

† Alternate Value.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K		24-422	F1-41			■ UE4204 {	Stereo Volume
B	500K			R2-41				Main Volume
R2A	500K		24-423	B-60	AD47-500K		FB55A	Main Tone
B	500K			SR-60	Not Req.		RU55A	Stereo Tone
C	Shaft			Not Req.	FS-3		CS3500	
R3	200Ω	2(WW)	24-1-3				FL200P	Hum Adjust
R4	200Ω	2(WW)	24-1-3				FL200P	Hum Adjust

■ "STA-LOC" equivalent: FB55A, RU55A, CS437, IS875.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R5	5.6meg			
R6	270Ω 1W			
R7	820K			
R8	68K			
R9	560K			
R10	2.2meg			
R11	1meg			
R12	220K			
R13	4700Ω			
R14	470K			
R15	100K			
R16	220K			
R17	4700Ω			
R18	220K			
R19	100K			
R20	1500Ω			
R21	220K			
R22	100K			
R23	2200Ω			
R24	10K			
R25	470K			
R26	1meg			
R27	220Ω 1W			
R28	390K			
R29	220K			
R30	4700Ω			
R31	470K			
R32	220K			
R33	4700Ω			
R34	68K			
R35	10K			
R36	15K			
R37	1000Ω 5W	PW5-1000	5W-SQ-1000	
R38	47K			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA SILVERTONE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	NOTES
L1	Bias Osc.	10-59-4				Adjusted for 80KC

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA SILVERTONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V@ .29A	480VCT @ .040A DC	6.3V@ @ .3A	80-50-0B①					① Alternate Part # 80-50-0
	SEC. 3	SEC. 4	SEC. 5						
	6.3V@ 1.7A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA SILVERTONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	5000Ω	6-8Ω	80-132-1A ①	A-2902 ②	A-3337	22S88	S-56Z	① Alternate Part #80-132-1 ② Drill New Mounting Hole (s).

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA SILVERTONE PART No.	QUAM PART No.	NOTES
SP1	5"x 7"	PM	6-8Ω	33-477-4	57A1Z8	

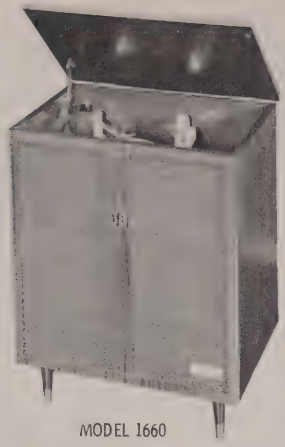
MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M1	Head		Record & Playback
M2	Head		Erase Part of Complete Ass'y. Part #84-7866
M3	Switch	69-331-0	Function (Slide Switch)
M4	Switch	69-346-0	Track Selector (Rotary Type)
M5	Switch	69-355-0	Equalizer (Slide Type)
M6	Switch	69-343-0	Power Off-On (Mechanically linked to Function Switch)
M7	Motor	84-9250	Drive, Includes Bracket Assembly
	Microphone	33-39-1	

PHOTOFACT® Folder

SYMPHONIC MODELS 124, 1660, 1662, 1664, 1666

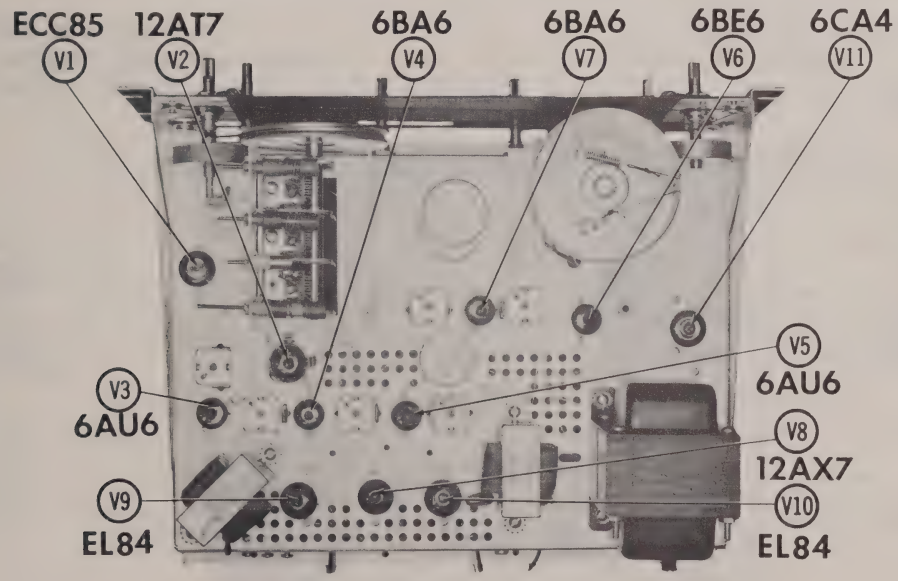
SYMPHONIC MODELS 124, 1660, 1662, 1664, 1666



MODEL 1660

TRADE NAME	Symphonic Models 1660, 1662, 1664, 1666 (FM-AM Receiver Model 124)		
MANUFACTURER	Symphonic Radio & Electronics Corp., 235 Jersey Ave., New Brunswick, N. J.		
TYPE SET	AC Operated 11 Tube FM-AM Receiver With Stereo Amplifier		
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles	RATING	100 Watts, .9 Amp. @117 Volts AC (Less Motor)
TUNING RANGE—BROADCAST	540 – 1600KC	FREQ. MOD.	88 – 108MC

FOR SERVICE INFORMATION ON RECORD CHANGER – SEE SIMILAR MONARCH UA8 – PHOTOFACT SET 381 FOLDER 11 OR RECORD CHANGER MANUAL RC-11



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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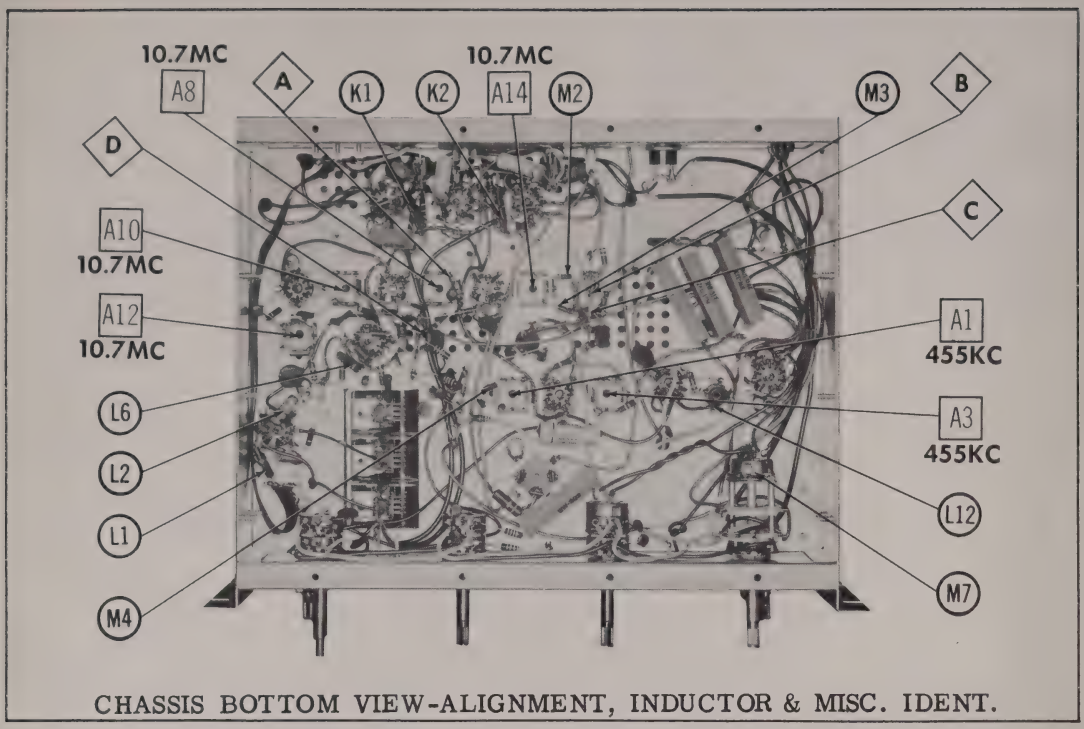
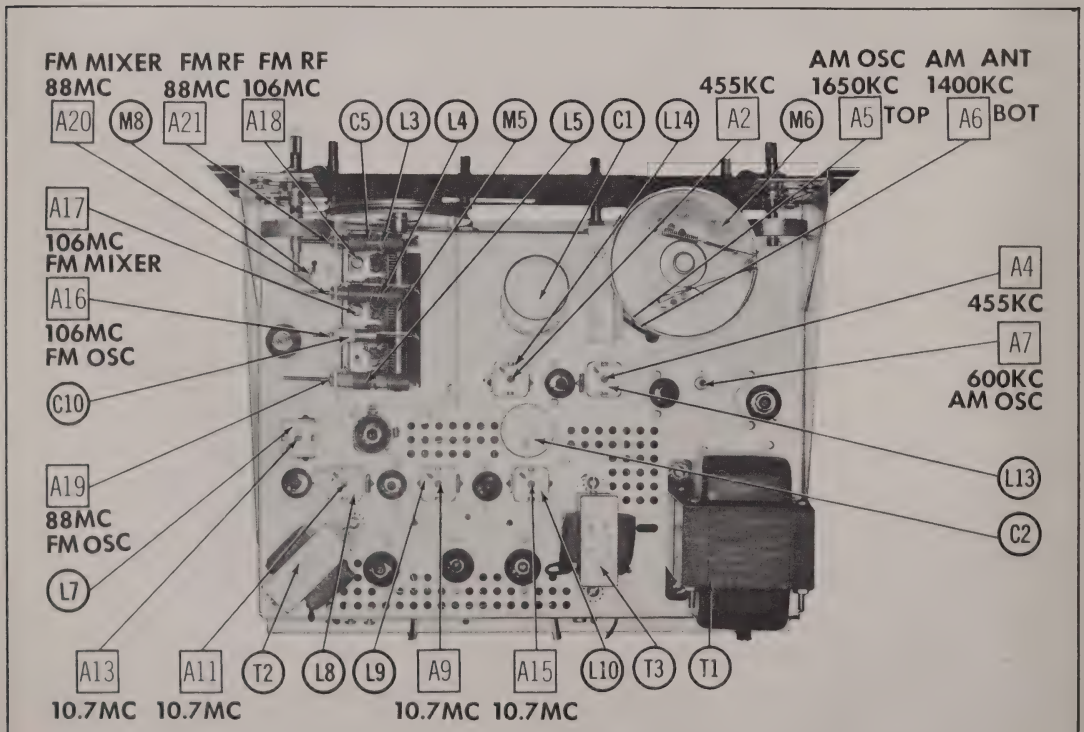
KN201

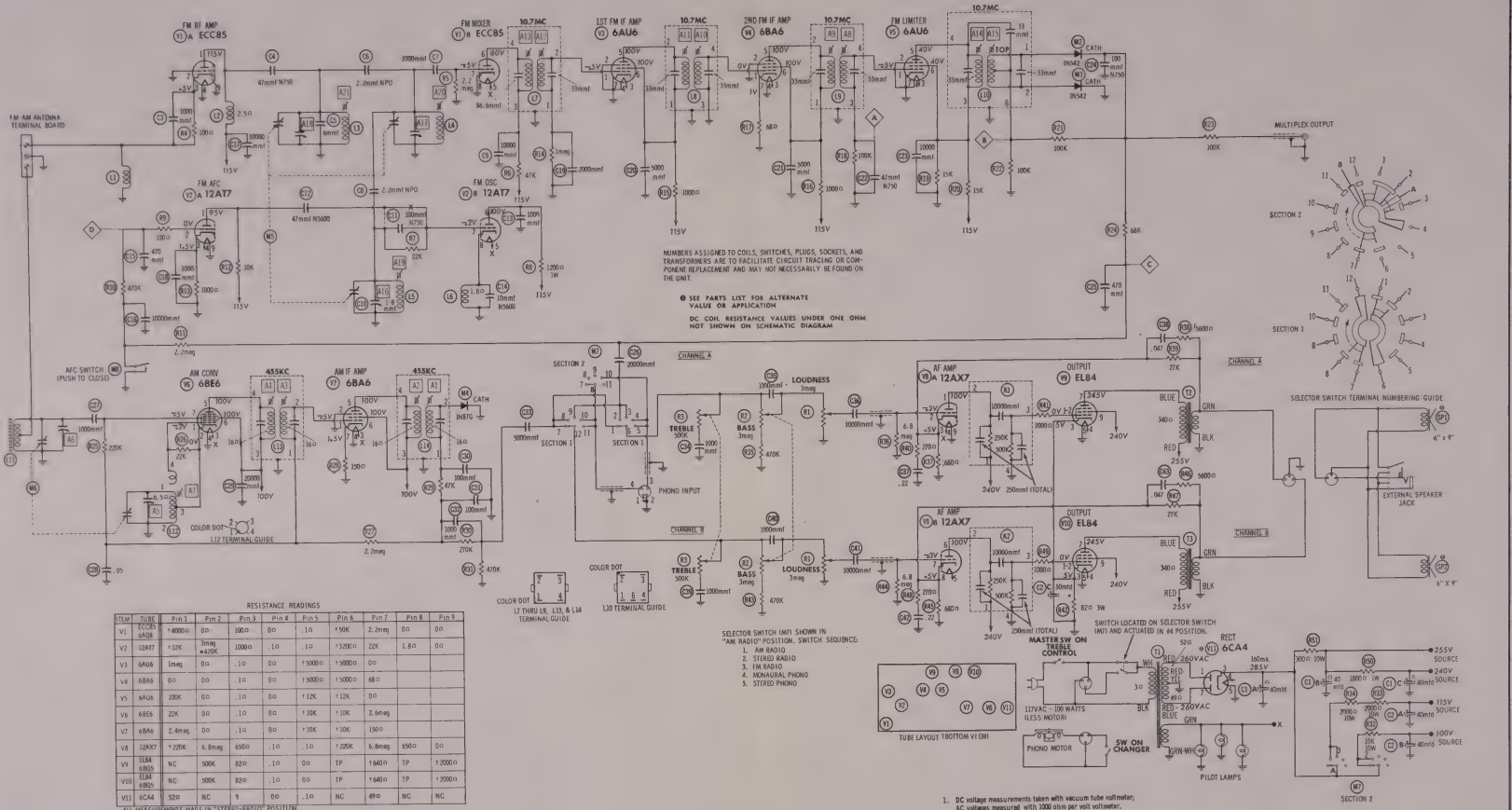
SET 522 FOLDER 11



CHASSIS BOTTOM VIEW-ALIGNMENT, INDUCTOR & MISC. IDENT.



CHASSIS TOP VIEW-ALIGNMENT, INDUCTOR & MISC. IDENT.



RESISTANCE READINGS

TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
ECC85 6AQ8	▪ 4000Ω	0Ω	100Ω	0Ω	.1Ω	▪ 50K	2.2meg	0Ω	0Ω
12AT7	▪ 12K	3meg w/470K	1000Ω	.1Ω	.1Ω	▪ 3200Ω	22K	1.8Ω	0Ω
6AU6	1meg	0Ω	.1Ω	0Ω	▪ 5000Ω	▪ 5000Ω	0Ω		
6BA6	0Ω	0Ω	.1Ω	0Ω	▪ 5000Ω	▪ 5000Ω	68Ω		
6AU6	100K	0Ω	.1Ω	0Ω	▪ 12K	▪ 12K	0Ω		
6BE6	22K	0Ω	.1Ω	0Ω	▪ 10K	▪ 10K	2.6meg		
6BA6	2.4meg	0Ω	.1Ω	0Ω	▪ 10K	▪ 10K	150Ω		
12AX7	▪ 220K	6.8meg	650Ω	.1Ω	.1Ω	▪ 220K	6.8meg	650Ω	0Ω
EL84 6BQ5	NC	500K	82Ω	.1Ω	0Ω	TP	▪ 640Ω	TP	▪ 2000Ω
EL84 6BQ5	NC	500K	82Ω	.1Ω	0Ω	TP	▪ 640Ω	TP	▪ 2000Ω
6CA4	52Ω	NC	▪	0Ω	.1Ω	NC	49Ω	NC	NC

ALL MEASUREMENTS MADE IN "STEREO-RADIO" POSITION.
▪ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 3 OF V11. NC NO CONNECTION
■ MEASURED WITH AFC OFF. TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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SYMPHONIC MODELS 124, 1660, 1662, 1664, 1666

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loudness control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:

A1 Thru A4, A8 Thru A15...	GENERAL CEMENT #5097, 8727 WALSCO #2515
A5, A6, A17, A18.....	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
A7.....	GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440 WALSCO #2526, 2543, 2544, 2545
A16, A19, A20, A21.....	GENERAL CEMENT #8721, 8722 WALSCO #2519

AM ALIGNMENT—SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru 3.5mmf to AM antenna terminal. Low side to chassis.	455KC (400∿ Mod.)	(AM) Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	"	1650KC	1650KC	"	A5	"
3.	"	1400KC	1400KC	"	A6	"
4.	"	600KC	600KC	"	A7	Adjust for maximum output while rocking tuning gang. Repeat Steps 1 thru 4.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

Remove FM Oscillator—AFC Tube from its socket.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	High side to ungrounded tube shield floating over FM Mixer. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe thru 150K to point Ⓐ. Common to chassis.	A8, A9, A10, A11, A12, A13	Adjust for maximum deflection.
6.	"	"	"	DC probe thru 1meg to point Ⓑ. Common to chassis.	A14	"
7.	"	"	"	DC probe to point Ⓒ. Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Replace tube in its socket.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.
Remove FM Oscillator — AFC Tube from its socket.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	High side to ungrounded tube shield floating over FM Mixer. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. thru 150K to point Ⓐ. Low side to chassis.	A8, A9, A10, A11, A12, A13	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
6.	"	"	"	Vert. amp. thru 47K to point Ⓑ. Low side to chassis.	A14	"
7.	"	"	"	Vert. amp. to point Ⓒ. Low side to chassis.	A15	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A14 for maximum amplitude and straightness of crossover lines. Replace FM Oscillator-AFC tube in its socket.

FM RF ALIGNMENT — SELECTOR IN FM POSITION

Short point Ⓓ to chassis.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	High side thru 270Ω to FM antenna terminal. Low side to chassis.	106MC (Unmod.)	(FM) 106MC	DC probe thru 250K to point Ⓐ. Common to chassis.	A16, A17, A18	Adjust for maximum deflection.
9.	"	88MC	88MC	"	A19, A20, A21	"

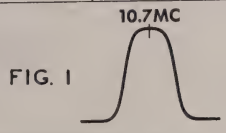


FIG. 1

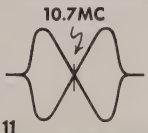
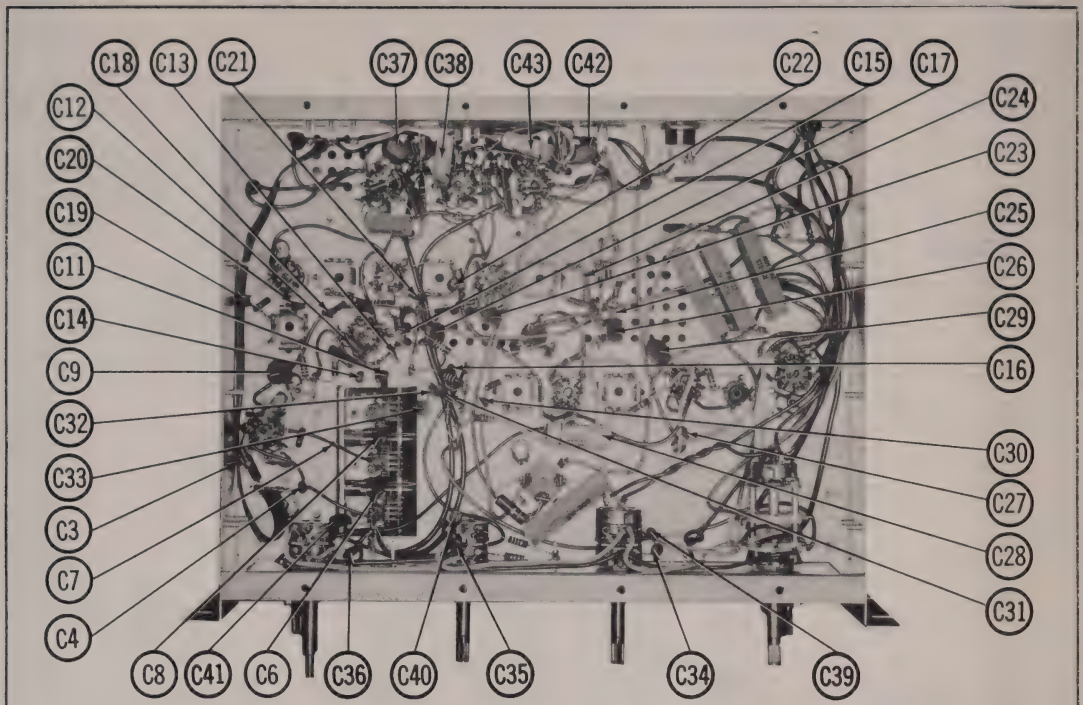
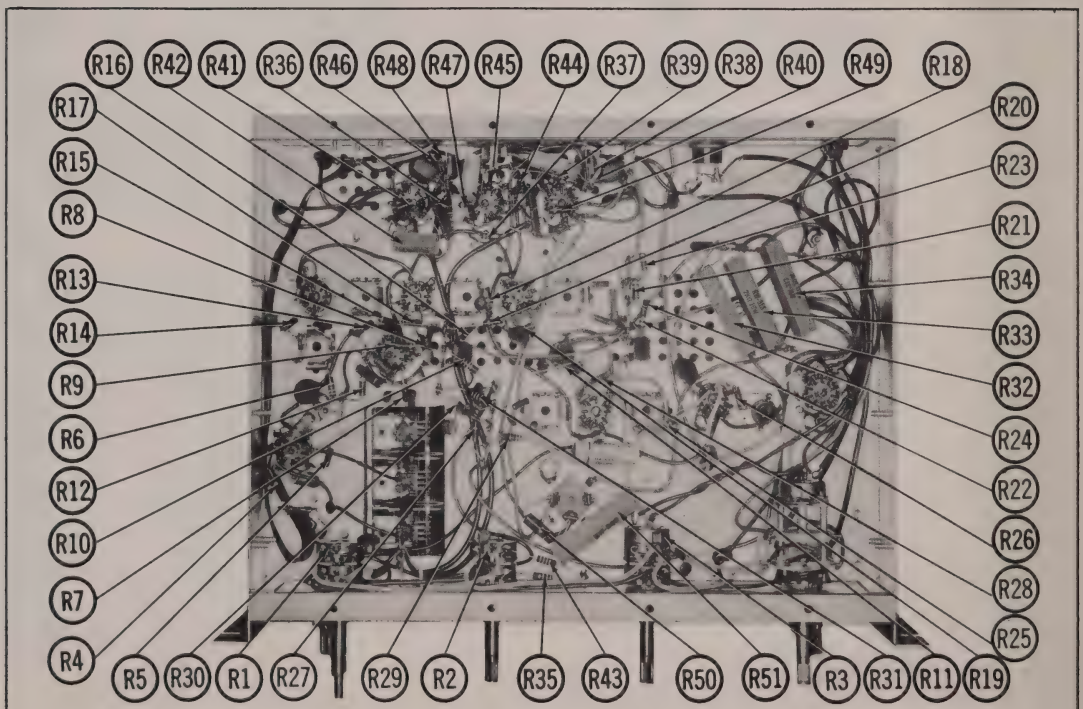


FIG. 2



CHASSIS BOTTOM VIEW-CAPACITOR IDENT.



CHASSIS BOTTOM VIEW-RESISTOR IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amp. -FM Mixer	ECC85/6AQ8	V7	AM IF Amplifier	6BA6
V2	FM Osc. -AFC	12AT7	V8	Channel A AF Amp. - Channel B AF Amp.	12AX7
V3	1st FM IF Amplifier	6AU6			
V4	2nd FM IF Amplifier	6BA6	V9	Channel A Output	EL84/6BQ5
V5	FM Limiter	6AU6	V10	Channel B Output	EL84/6BQ5
V6	AM Converter	6BE6	V11	Rectifier	6CA4 (EZ91) *

GENERAL ELECTRIC • RAYTHEON • SYLVANIA •

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SYMPHONIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	450	CE-134	AFH3-44	C0350	FP377.1	TMT-3748	TVL-3787	
B	■40	450							
C	▲40	450							
C2A	40	350	CE-135	PR4-200	BBRD4445	TCD78	TDLD-31	TVA-2740	
B	40	350			BR5015	TC39	TD-50-50	TVA-1308	
C	50	50							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C4	47 N750		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C5	6			DD-060	C10V6C			10TS-V60
C6	2.2 NPO		NPO-DI 2.2	DTZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C7	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C8	2.2 NPO		NPO-DI 2.2	DTZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C9	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C10	1-8	#CT-101						
C11	100 N750		N750-SI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C12	47 N5600					*		
C13	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C14	10 N5600					*		
C15	470		DI-470	DD-471	L10T47	CCD-471	B-347	10TS-T47
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C19	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C20	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C21	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C22	47 N750		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C23	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	100 N750		N750-SI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C25	470		DI-470	DD-471	L10T47	CCD-471	B-347	10TS-T47
C26	20000		BPD-02	DD-203	BYB652	CCD-203	B-120	5HK-S20
C27	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C28	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C29	20000		BPD-02	DD-203	BYB652	CCD-203	B-120	5HK-S20
C30	100		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C31	100		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C32	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C33	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C34	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C35	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C36	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C37	.22 200V		P288N-22		CUB2P22	2DP-4-224	GEM-2022	2TM-P22
C38	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C39	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C40	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C41	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C42	.22 200V		P288N-22		CUB2P22	2DP-4-224	GEM-2022	2TM-P22

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C43	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
\# Symphonic Part Number.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SYMPHONIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3meg	linear taper	VC-301	B-85 *				Loudness, Channel A
B	3meg			SR-85 *				Loudness, Channel B
R2A	3meg		VC-299	B-85			FC36A	Bass, Channel A
B	3meg			SR-85			RU36A	Bass, Channel B
C	Shaft			Not Req.			CS3500	
R3A	500K	log taper	VC-300	B-60	AD47-500K-Z		FA55A	Treble, Channel A
B	500K			SR-60	Not Req.		RU55A	Treble, Channel B
C	Shaft			Not Req.	KSS-3		CS3500	
D	Switch			KR-1	SWE-12		US-41	Power Off-On

* Use Friction Spring AK-32.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R4	100Ω			
R5	2.2meg			
R6	47K			
R7	22K			
R8	1200Ω 1W			
R9	100Ω			
R10	470K			
R11	2.2meg			
R12	10K			
R13	1000Ω			
R14	1meg			
R15	1000Ω			
R16	1000Ω			
R17	68Ω			
R18	100K			
R19	15K			
R20	15K			
R21	100K			
R22	100K			
R23	100K			
R24	68K			
R25	220K			
R26	22K			
R27	2.2meg			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R28	150Ω			
R29	47K			
R30	270K			
R31	470K			
R32	10K 10W	PW10-10000Ω	10W-SQ-10000Ω	Pt. #RW-314
R33	2000Ω 10W	PW10-2000Ω	10W-SQ-2000Ω	Pt. #RW-313
R34	2000Ω 10W	PW10-2000Ω	10W-SQ-2000Ω	Pt. #RW-313
R35	470K			
R36	6.8meg			
R37	680Ω			
R38	5600Ω			
R39	27K			
R40	270Ω			
R41	1000Ω			
R42	82Ω 3W	PW5-82Ω	5W-SQ-82Ω	Pt. #RW-35
R43	470K			
R44	6.8meg			
R45	680Ω			
R46	5600Ω			
R47	27K			
R48	270Ω			
R49	1000Ω			
R50	1800Ω 1W			
R51	300Ω 10W	PW10-300Ω	10W-SQ-300Ω	Pt. #RW-309

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SYMPHONIC PART No.	REPLACEMENT DATA
K1	Audio Coupling	250mmf, 10000mmf, 250K, 500K	PC-81	Aerovox PA-112-4 Centralab PC-81 Cornell-Dubilier 113TM2 Sprague T2
K2	Audio Coupling	250mmf, 10000mmf, 250K, 500K	PC-81	Aerovox PA-112-4 Centralab PC-81 Cornell-Dubilier 113TM2 Sprague T2

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: SYMPHONIC PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	NOTES
L1	FM Ant. (.27uh)	LB-103 ①		4584	RTC-8512	① IRC Part #CLA
L2	RF Choke(3.3 uh)	LB-101 ①	BC-564	4608	RTC-8518	
L3	FM RF	LO-108				
L4	FM Mixer	LO-108				
L5	FM Osc.	LO-109				
L6	Cathode Choke(1uh)	LB-102 ①	BC-561	4602	RTC-8515	
L7	1st FM IF	LF-107	FM-254	1463	RTC-8599	
L8	2nd FM IF	LF-105	FM-254	1463	RTC-8599	
L9	3rd FM IF	LF-108	FM-254	1463	RTC-8599	
L10	Discriminator	LF-106	FM-253	1464	RTC-8665	
L11	Loopstick	AL-103	BC-419	705-A		
L12	AM Osc.	LO-107	BC-393	69-OSC	RTC-8646	
L13	1st AM IF	LF-104	BC-352	12-C1	RTC-8632	
L14	2nd AM IF	LF-104	BC-353	12-C2	RTC-8633	

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA: SYMPHONIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V ⓐ .9A	520VCT ⓐ .160A	6.3V ⓐ 4.9A	TR-179					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: SYMPHONIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	5300Ω	3-4Ω	TR-178	A-3019	A-8092	26S49	S-5Z	
T3	5300Ω	3-4Ω	TR-178	A-3019	A-8092	26S49	S-5Z	

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: SYMPHONIC PART No.	QUAM PART No.	NOTES
SP1	6"x 9"	PM	3-4Ω	SP-617 *	69A3	* Used in Model 1660
SP2	6"x 9"	PM	3-4Ω	SP-617 *	69A3	♦ Used in Model 1662
	3½"	PM	3-4Ω	SP-420 ♦	3A15TZ3.2	‡ Used in Model 1664
	6"x 9"	PM	3-4Ω	SP-607 ♦		
	10"	PM	3-4Ω	SP-805 ♦ ‡	10A4A	† Used in Model 1666
	2½"	PM	3-4Ω	SP-202 ‡ †	25A07	
	12"	PM	3-4Ω	SP-808 †	12A6A	

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA: SYMPHONIC PART No. CARTRIDGE	SYMPHONIC PART No. NEEDLE*	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE*	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE*	SONOTONE PART No. CARTRIDGE	SONOTONE PART No. NEEDLE*	NOTES
M1			70-TS-TB	N8-7 * & N8-3 *	96T	Not Req.	12TH-S	Not Req.	Models 1660, 1664, 1666
			76-TS-TB	N8-7 * & N8-3 *	96T	Not Req.	12TH-S	Not Req.	Model 1662

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: SYMPHONIC PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M2	1N542	CR-1N542		1N295	1N295	FM Detector Matched
M3	1N542	CR-1N542		1N295	1N295	FM Detector Pair
M4	1N87G	CR-1N87		1N87	1N87	AM Detector

MISCELLANEOUS

ITEM No.	PART NAME	SYMPHONIC PART No.	NOTES
M5	Tuning Cap.	CV-107	FM
M6	Tuning Cap.	CV-108	AM, 2 Gang(Ant. 21—484mmf, Osc. 8—160mmf)
M7	Switch	SW-131	Function (Rotary Type)
M8	Switch	SW-133	AFC (Normal On-Push Off on FM Tuning Shaft)

CABINETS & CABINET PARTS

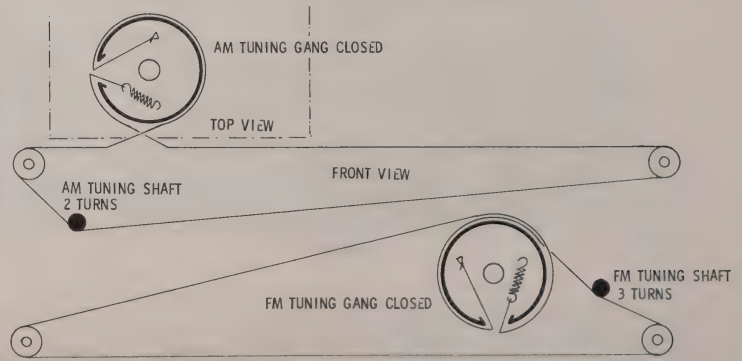
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Glass	DL-107	
Dial Pointer	DL-108	
Knob	KN-401	Tuning, AFC
Knob	KN-369	Dual, Clear Top-Black Bottom, Model 1660, 1662
Knob	KN-368	Black Bottom, Model 1660, 1662
Knob	KN-367	Clear Top With Gold Insert, Models 1660, 1662
Knob	KN-400	Dual, Black With Gold Inlay, Models 1664, 1666
Knob	KN-399	Rear, Clear With Gold Inlay, Models 1664, 1666
Knob	KN-398	Front, Black With Gold Inlay, Models 1664, 1666

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

DIAL CORD STRINGING

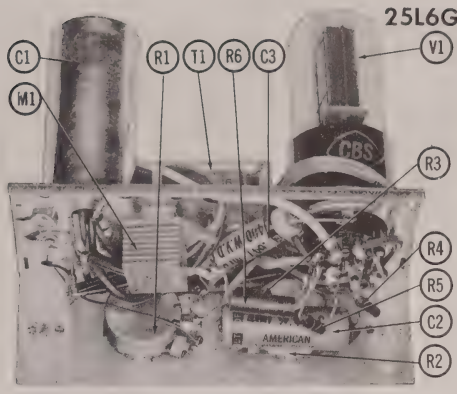


PHOTOFACT® Folder

SYMPHONIC MODELS 1210, 1212, 1215, 1223, 1245, 1247, 1502, 1504, 1506, 1602

SYMPHONIC MODELS 1210, 1212, 1215, 1223, 1245, 1247, 1502, 1504, 1506, 1602

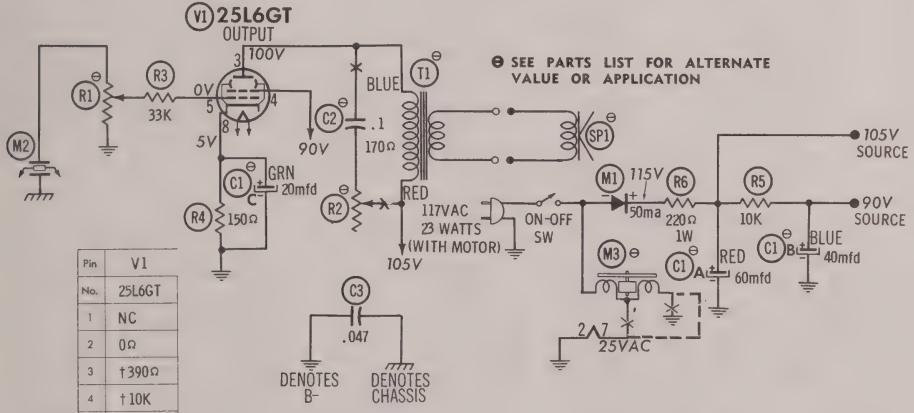
MODEL 1602



SYMPHONIC MODELS 1210, 1212, 1215, 1223, 1245, 1247, 1502, 1504, 1506, 1602

TRADE NAME	Symphonic Models 1210, 1212, 1215, 1223, 1245, 1247, 1502, 1504, 1506, 1602
MANUFACTURER	Symphonic Radio & Electronics Corp., 235 Jersey Ave., New Brunswick, N. J.
TYPE SET	AC Operated One Tube Phono Amplifier
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles RATING 23 Watts, .25 Amp. @117 Volts AC (Includes Motor)

MODELS 1210, 1212, 1502 ARE 3 SPEED MANUAL PLAYERS
MODELS 1215, 1223, 1504, 1506, 1602 ARE 4 SPEED MANUAL PLAYERS.
MODELS 1245, 1247 ARE 45 RPM AUTOMATIC CHANGERS



Pin No.	V1 25L6GT
1	NC
2	0Ω
3	†390Ω
4	†10K
5	33K
6	TP
7	15Ω
8	150Ω

† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION
TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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SET 522 FOLDER 12

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Output	25L6GT			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	SYMPHONIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	60	150	CE101	PRS3800	BBRT84215	TCT3119	TDLT-7	TVA-3455	Note 1
B	40	150							Note 1
C	20	150							Note 1

Note 1. C1 is 40-30-20mfd in Models 1210, 1212, 1215, 1223, 1245, 1247.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.1 400V	Note 1	P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C3	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47

Note 1. Not used in Models 1210, 1212, 1245.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	SYMPHONIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	VC-208	B-60	A47-500K-Z	Q13-133	U48	Volume Note 1
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R1A	500K	½	VC-157	B-60-S	A47-500K-Z	Q13-133	U48	Volume Note 2
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	
R2A	50K	½	VC-156	B-31	A47-50K-S	Q11-123	U35	Tone Note 3
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

Note 1. Models 1210, 1223, 1245, 1247. 1502, 1506 use 500K volume with switch (Part #VC-139).
Note 2. Used in Model 1215.
Note 3. Models 1223, 1247, 1506 use Part #VC-109.
Not used in Models 1210, 1212, 1245, 1504.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	33K			
R4	150Ω			
R5	10K			
R6	220Ω 1W			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	SYMPHONIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	1900Ω	3-4Ω	TR146 ①	A-3025	A-3332	24S53	S-12X	① Part #TR109 used in Models 1210, 1212, 1215, 1245, 1247, 1504. Part #TR118 used in Models 1223, 1506.

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA SYMPHONIC PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	SP-401 *	4A1	* Used in Models 1212, 1215, 1223, 1245, 1502, 1506, 1602
	4"	PM		SP-409 ♦		♦ Used in Models 1210
	5 1/4"	PM	3-4Ω	SP-605 ‡	52A21	‡ Used in Model 1247
	4"	PM		SP-413 †		† Used in Model 1504

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	SYMPHONIC PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.050A	SR101 *	1N1763 ♦	65A *	SR200 ♦	* Selenium ♦ Silicon

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	SYMPHONIC PART No. CARTRIDGE	SYMPHONIC PART No. NEEDLE*	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE*	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE*	SONOTONE PART No. CARTRIDGE	SONOTONE PART No. NEEDLE*	NOTES
M2			124-TS	N8-1 *&					♦ Includes Tone Arm.
			KR-314-T♦	N8-3 *					

MISCELLANEOUS

ITEM No.	PART NAME	SYMPHONIC PART No.	NOTES
M3	Motor	MO-111 (or)	Gray, 4 Speed, Model 1602
	Motor	MO-113	Tan, 4 Speed, Model 1602
	Motor	MO-102 (or)	3 Speed, Models 1210, 1212, 1502 (order color)
	Motor	MO-103	3 Speed, Models 1210, 1212, 1502 (order color)
	Motor	MO-104 (or)	4 Speed, Models 1215, 1223, 1504 (order color)
	Motor	MO-105	4 Speed, Models 1215, 1223 (order color)
	Motor	MO-112	4 Speed, 90V, Model 1506
	Idler Wheel		WALSCO Part #1492-03

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	KN143	Gray, Models 1502, 1504, 1506, 1602, 1210, 1212, 1215, 1223
Knob	KN144	Mahogany, Models 1504, 1210, 1212, 1215, 1223
Knob	KN204	Black, Model 1245
Knob	KN210	Volume, Clear, Model 1247
Knob	KN211	Tone, Clear, Model 1247
Knob	KN289	Black, Model 1506
Knob	KN290	Red, Model 1506
Knob	KN366	Tan, Model 1602

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

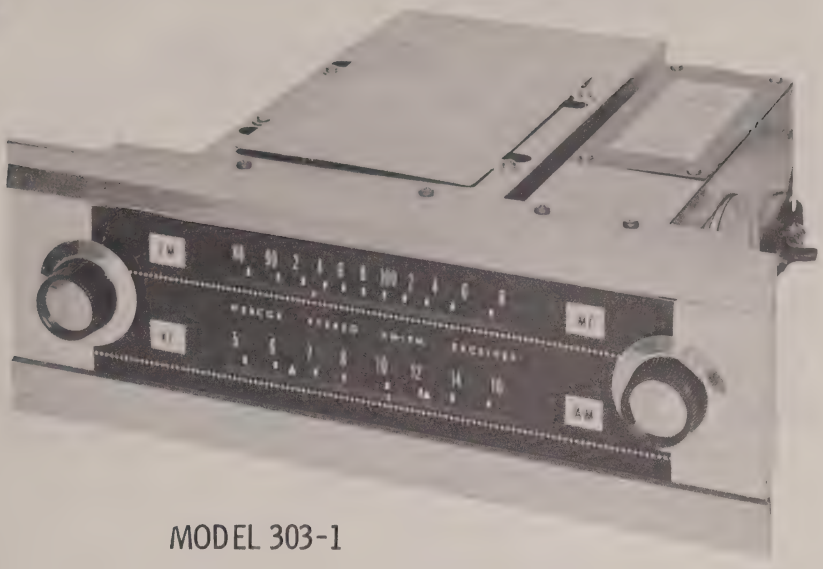
Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder with CIRCUITRACE®

WEBCOR MODELS 301-1, 302-1, 303-1 (Ch. 73X017-1, 73X018-1)

WEBCOR MODELS 301-1, 302-1, 303-1 (Ch. 73X017-1, 73X018-1)

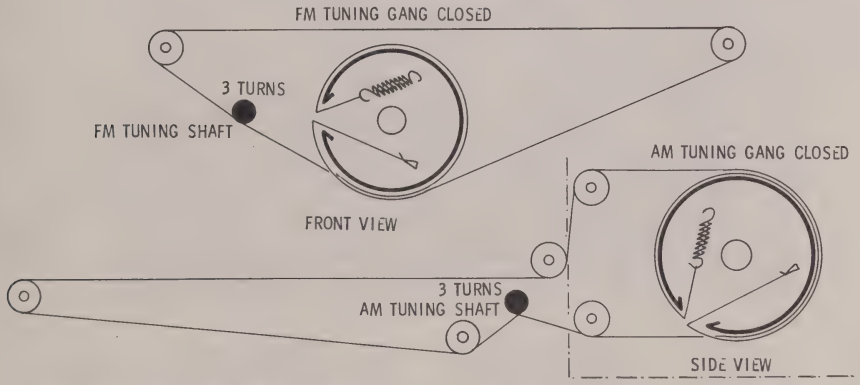


MODEL 303-1

WEBCOR MODELS 301-1, 302-1, 303-1 (Ch. 73X017-1, 73X018-1)

TRADE NAME	Webcor Models 301-1 (AM Ch. 73X017-1), 302-1(FM Ch. 73X018-1), 303-1(FM-AM Chassis Combined)		
MANUFACTURER	Webcor, Inc., 5610 W. Bloomingdale Ave., Chicago 39, Illinois		
TYPE SET	AC Operated 6 Tube FM Tuner, 2 Tube AM Tuner		
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles	RATING	25 Watts, .24 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	535 — 1620KC	FREQ. MOD.	88 — 108MC

DIAL CORD STRINGING



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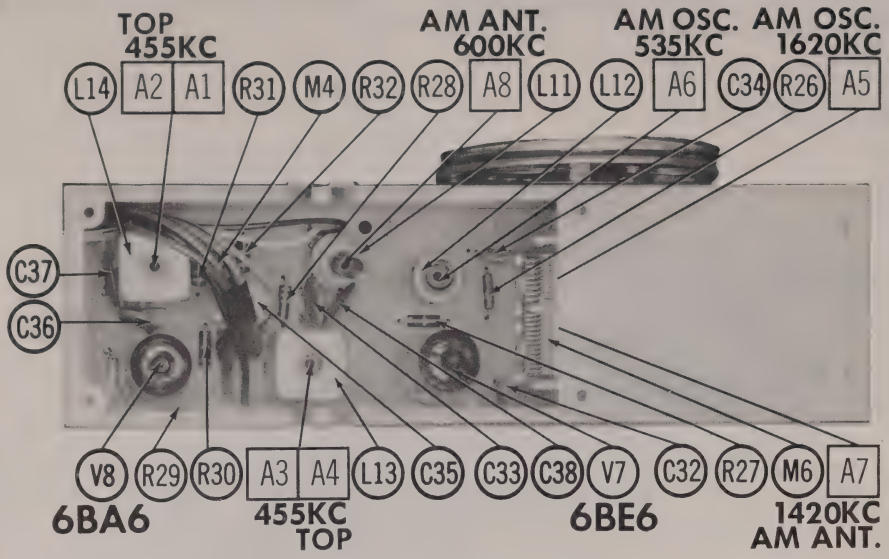
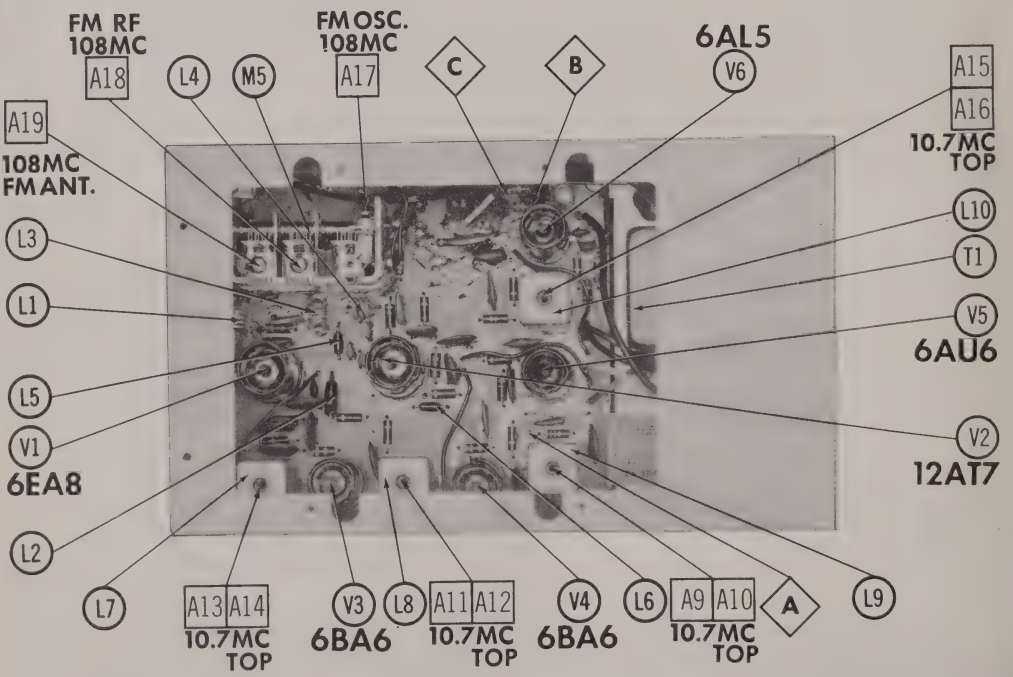
KL188

SET 522 FOLDER 13



AM CHASSIS-TOP VIEW



FM CHASSIS-ALIGN., INDUCTOR, TUBE & MISC. IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.
Suggested Alignment Tools: A1 Thru A4, A6, A8 Thru A16. GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A5, A7, A17, A18, A19..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

AM ALIGNMENT—SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .05mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (400∿ Mod.)	AM Tuning gang fully open.	AC Probe across AM Audio output cable.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum deflection.
3.	"	535KC	Tuning gang fully closed.	"	A6	Adjust for maximum deflection. Repeat steps 2 and 3.
4.	"	1420KC	1420KC Signal.	"	A7	Adjust for maximum deflection.
5.	"	600KC	600KC Signal.	"	A8	Adjust for maximum deflection. Repeat Steps 4 and 5.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	High side thru .01mfd to pin 9 (grid) of FM Mixer. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe thru 1meg to point (A). Common to chassis.	A9, A10, A11, A12, A13, A14	Adjust for maximum deflection.
7.	"	"	"	DC probe to point (B). Common to chassis.	A15	"
8.	"	"	"	DC probe to point (C). Common to chassis.	A16	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
6.	High side thru .01mfd to pin 9 (grid) of FM Mixer. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. thru 100K to point (A). Low side to chassis.	A9, A10, A11, A12, A13, A14	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
7.	"	"	"	Vert. amp. to point (B). Low side to chassis.	A15	Disconnect stabilizing Capacitor C2. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C2.
8.	"	"	"	Vert. amp. to point (C). Low side to chassis.	A16	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A15 for maximum amplitude and straightness of cross-over lines.

FM RF ALIGNMENT—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9.	Across FM antenna terminals with 240Ω in high side.	108MC (Unmod.)	(FM) 108MC	DC probe to point (A). Common to chassis.	A17, A18, A19	Adjust for maximum deflection.
10.	"	88MC	88MC	"	L4, L3, L1	Adjust for maximum deflection by expanding or compressing coil turns.

FIG. 1

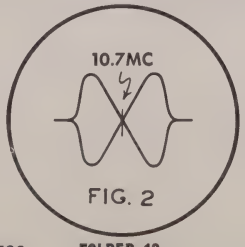
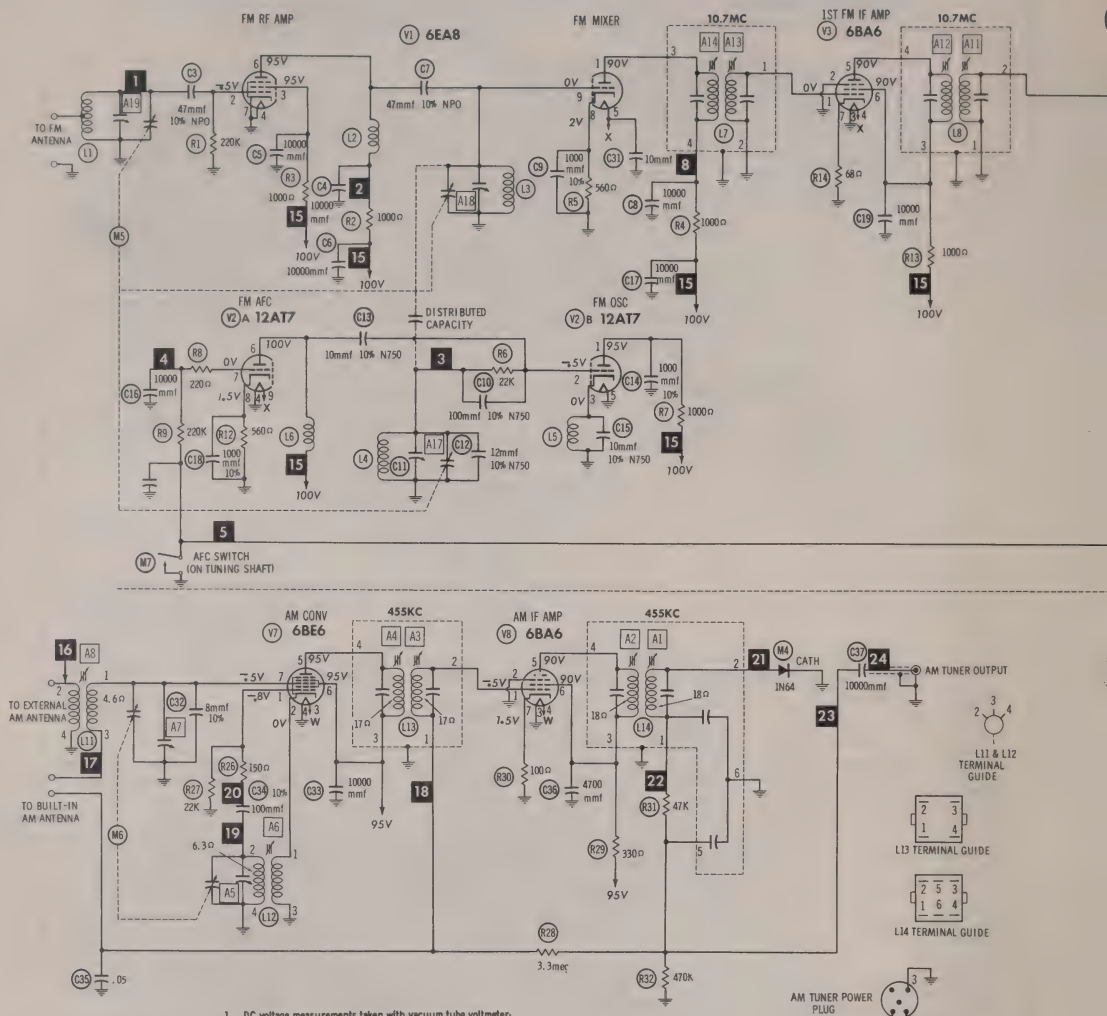


FIG. 2



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

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with CIRCUITRACE

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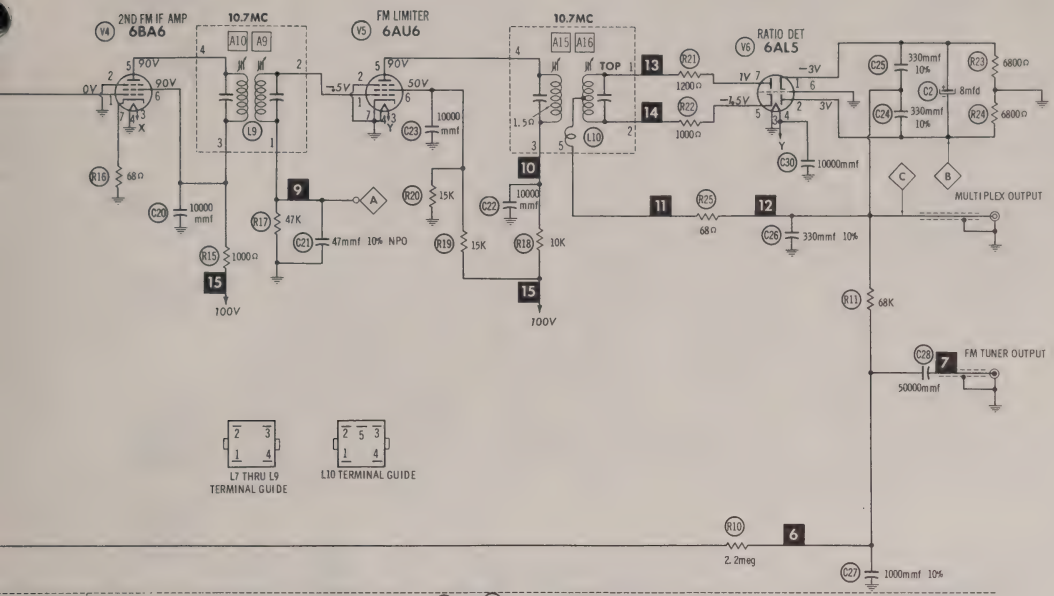
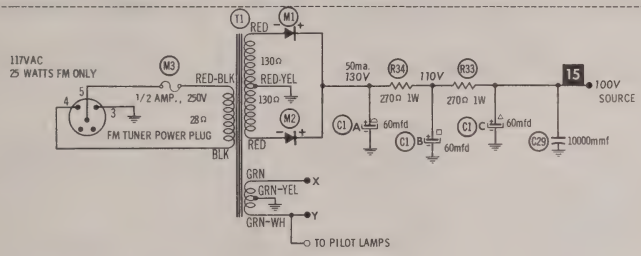




RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6EA8	†1500Ω	220K	†1500Ω	0Ω	.1Ω	†1500Ω	0Ω	560Ω	0Ω
V2	12AT7	†1500Ω	22K	0Ω	0Ω	0Ω	†550Ω	INF ■220K	560Ω	.1Ω
V3	6BA6	0Ω	0Ω	0Ω	.1Ω	†1500Ω	†1500Ω	68Ω		
V4	6BA6	0Ω	0Ω	.1Ω	0Ω	†1500Ω	†1500Ω	68Ω		
V5	6AU6	47K	0Ω	.1Ω	0Ω	†10K	†12K	0Ω		
V6	6AL5	6800Ω	6800Ω	0Ω	.1Ω	INF	0Ω	INF		
V7	6BE6	22K	0Ω	3Ω	0Ω	††17Ω	††0Ω	3.5meg		
V8	6BA6	3.5meg	0Ω	0Ω	3Ω	††350Ω	††330Ω	100Ω		

† MEASURED FROM OUTPUT OF M1 & M2.
† MEASURED FROM PIN 2 OF POWER PLUG.
■ MEASURED WITH AFC SWITCH IN "OFF" POSITION.

WEBCOR MODELS 301-1, 302-1, 303-1 (Ch. 73X017-1, 73X018-1)

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

ITEM No.	USE	TYPE
V1	FM RF Amp. -FM Mixer	6EA8
V2	FM Osc. -AFC	12AT7
V3	1st FM IF Amplifier	6BA6
V4	2nd FM IF Amplifier	6BA6
V5	Limiter	6AU6
V6	Ratio Detector	6AL5
V7	AM Converter	6BE6
V8	AM IF Amp.	6BA6

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA WEBCOR PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲60	300	30P389		B0260		TMD-2320	TVL-2579	
B	▲60	250			BR6035		TD-60-350	TVA-1613	
C	▲60	250							
C2	8	25	30P314	PTT-25008	NLW8-100	TT25X8	MLV10-25	TE-1203.5	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	47 NPO 10%		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C4	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C5	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C6	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	47 NPO 10%		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C8	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C9	1000 10%		DI-1000	DD-102		CCD-102	GP210	10TS-D10
C10	100 N750 10%		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C11		#30P392						
C12	12 N750 10%				C10Q12U		CN7-412	10TCU-Q12
C13	10 N750 10%		N750-DI 10	DTN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C14	1000 10%		DI-1000	DD-102		CCD-102	GP210	10TS-D10
C15	10 N750 10%		N750-DI 10	DTN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	1000 10%		DI-1000	DD-102		CCD-102	GP210	10TS-D10
C19	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	47 NPO 10%		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C22	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	330 10%		DI-330	DD-331	LI0T33	CCD-331	GP333	10TS-T33
C25	330 10%		DI-330	DD-331	LI0T33	CCD-331	GP333	10TS-T33
C26	330 10%		DI-330	DD-331	LI0T33	CCD-331	GP333	10TS-T33
C27	1000 10%		DI-1000	DD-102		CCD-102	GP210	10TS-D10
C28	50000		BPD-05	DD-503			GP150	5HK-S50
C29	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C30	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	10		DI-10	DD-100	LI0Q1	CCD-100	GP410	10TS-Q10
C32	8 10%		NPO-DI 8.2	DD-080	LI0V8		GP580	10TS-V80
C33	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C34	100 10%		DI-100	DD-101	LI0T1	CCD-101	GP310	10TS-T10
C35	.05 400V		P415IN-047	DD-503	BC6S47J	4DP-3-503	ACE-615	4SE-S47
C36	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C37	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	50000		BPD-05	DD-503			GP150	5HK-S50

Webcor Part Number.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R1	220K			
R2	1000Ω			
R3	1000Ω			
R4	1000Ω			
R5	560Ω			
R6	22K			
R7	1000Ω			
R8	220Ω			
R9	220K			
R10	2.2meg			
R11	68K			
R12	560Ω			
R13	1000Ω			
R14	68Ω			
R15	1000Ω			
R16	68Ω			
R17	47K			
R18	10K			
R19	15K			
R20	15K			
R21	1200Ω			
R22	1000Ω			
R23	6800Ω			
R24	6800Ω			
R25	68Ω			
R26	150Ω			
R27	22K			
R28	3.3meg			
R29	330Ω			
R30	100Ω			
R31	47K			
R32	470K			
R33	270Ω 1W			
R34	270Ω 1W			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA WEBCOR PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	NOTES
L1	FM Ant.	11X1977				
L2	RF Choke(3.3uh)	66P029	BC-564	4608	RTC-8518	
L3	FM RF	66P027				
L4	FM Osc.	66P030				
L5	Cathode Choke (1uh)	66P028	BC-561	4602	RTC-8515	
L6	RF Choke (1uh)	66P028	BC-561	4602	RTC-8515	
L7	1st FM IF	69P019	FM-256	1463-PC	RTC-9046	
L8	2nd FM IF	69P019	FM-256	1463-PC	RTC-9046	
L9	3rd FM IF	69P019	FM-256	1463-PC	RTC-9046	
L10	Ratio Detector	69P017	FM-257	1465-PC	RTC-9053	
L11	AM Ant.	65P148				
L12	AM Osc.	65P146				
L13	1st AM IF	69P021	BC-356	13-PC-1	RTC-8641	
L14	2nd AM IF	69P022				

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA WEBCOR PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V@ .24A	210VCT @ .050A	12.6VCT @ 1.1A	68P084					

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA WEBCOR PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.050A	65P155 *	1N1763 *	2F4 *	SR200 *	* Silicon Type
M2	.050A	65P155 *	1N1763 *	2F4 *	SR200 *	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA WEBCOR PART No. FUSE	WEBCOR PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M3	8AG	1¼A 250V	33P006		361.500 (8AG ¼A 250V)	387001	AGX ¼	4520

PARTS LIST AND DESCRIPTIONS (Continued)

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		WEBCOR PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M4	1N64	65P119		1N64	1N64	AM Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	WEBCOR PART No.	NOTES
M5	Tuning Cap.	1JX2338	FM (3 Gang)
M6	Tuning Cap.	3DP330	AM (2 Gang)
	Printed Board	62P039-1	FM
	Printed Board	62P040-1	AM
M7	Switch	1JX2337	AFC (On Tuning Shaft. Push to Short)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Pointer	45P2910	Dial, FM
Pointer	45P2911	Dial, AM
Knob	39P227-10	Tuning

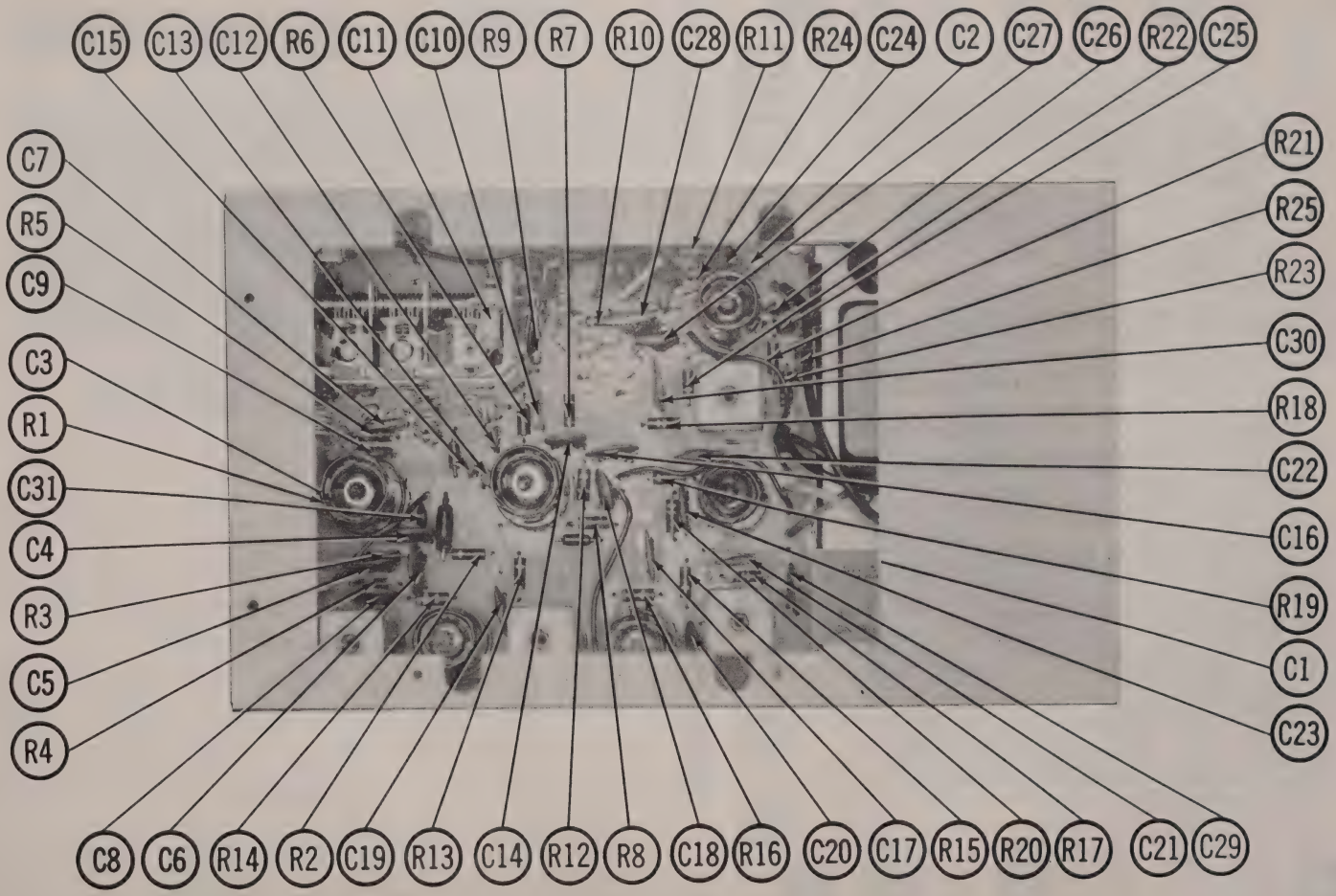
A Howard W. Sams CIRCUITRACE® Photo

FM CHASSIS

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

A Howard W. Sams CIRCUITRACE® Photo

AM CHASSIS



FM CHASSIS - CAPACITOR & RESISTOR IDENTIFICATION

PHOTOFACT® Folder with CIRCUITRACE®

WEBCOR MODELS 1058-1, 1060-1, 1068-1, -1A, 1071-1

WEBCOR MODELS 1058-1, 1060-1, 1068-1, -1A, 1071-1

MODEL WC1068-1

WEBCOR MODELS 1058-1, 1060-1, 1068-1, -1A, 1071-1

TRADE NAME	Webcor Models BC1058-1, BC1060-1, BC1068-1, BC1068-1A, BC1071-1, EC1071-1, MC1058-1, MC1060-1, MC1068-1, MC1068-1A, MC1071-1, WC1058-1, WC1060-1, WC1068-1, WC1068-1A, WC1071-1,
MANUFACTURER	Webcor, Inc., 5610 W. Bloomingdale Ave., Chicago 39, Illinois
TYPE SET	AC Operated 9 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	105 — 120 Volts AC, 60 Cycles RATING 95 Watts, .86 Amp. @ 117 Volts AC (Less Motor)

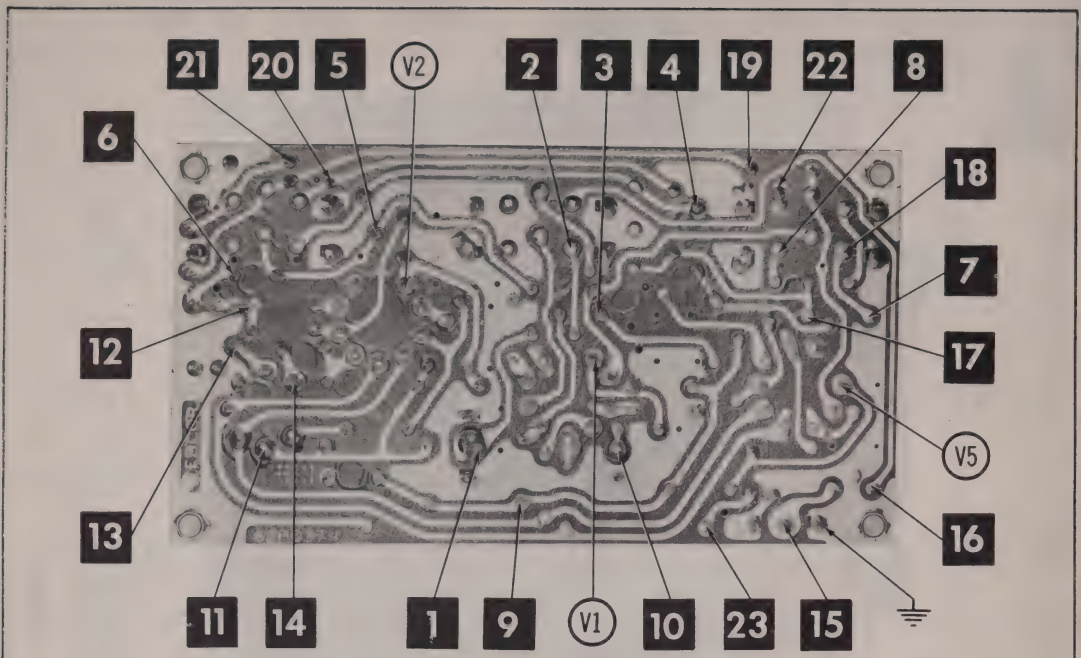
FOR SERVICE INFORMATION ON RECORD CHANGER — SEE WEBCOR 172 — PHOTOFACT SET 447 FOLDER 13 OR RECORD CHANGER MANUAL RC-12

SOME VERSIONS MAY INCLUDE AN FM-AM TUNER — FOR SERVICE INFORMATION REFER TO FOLDER 13 IN THIS SET OF PHOTOFACT FOLDERS

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KT189



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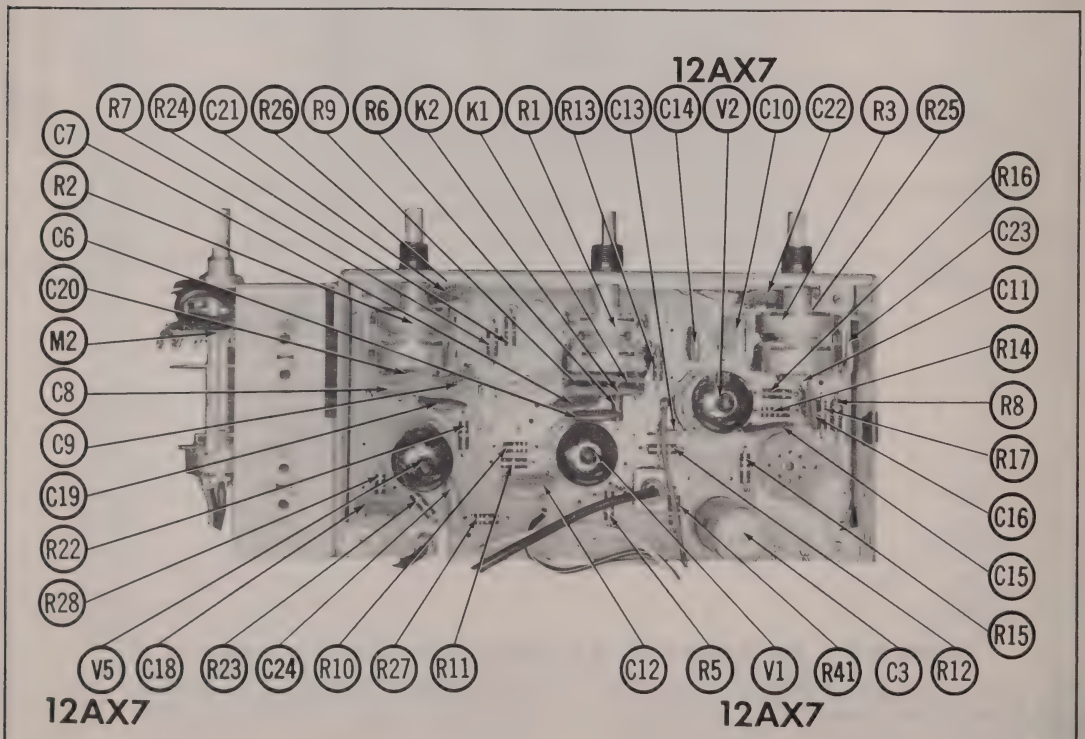
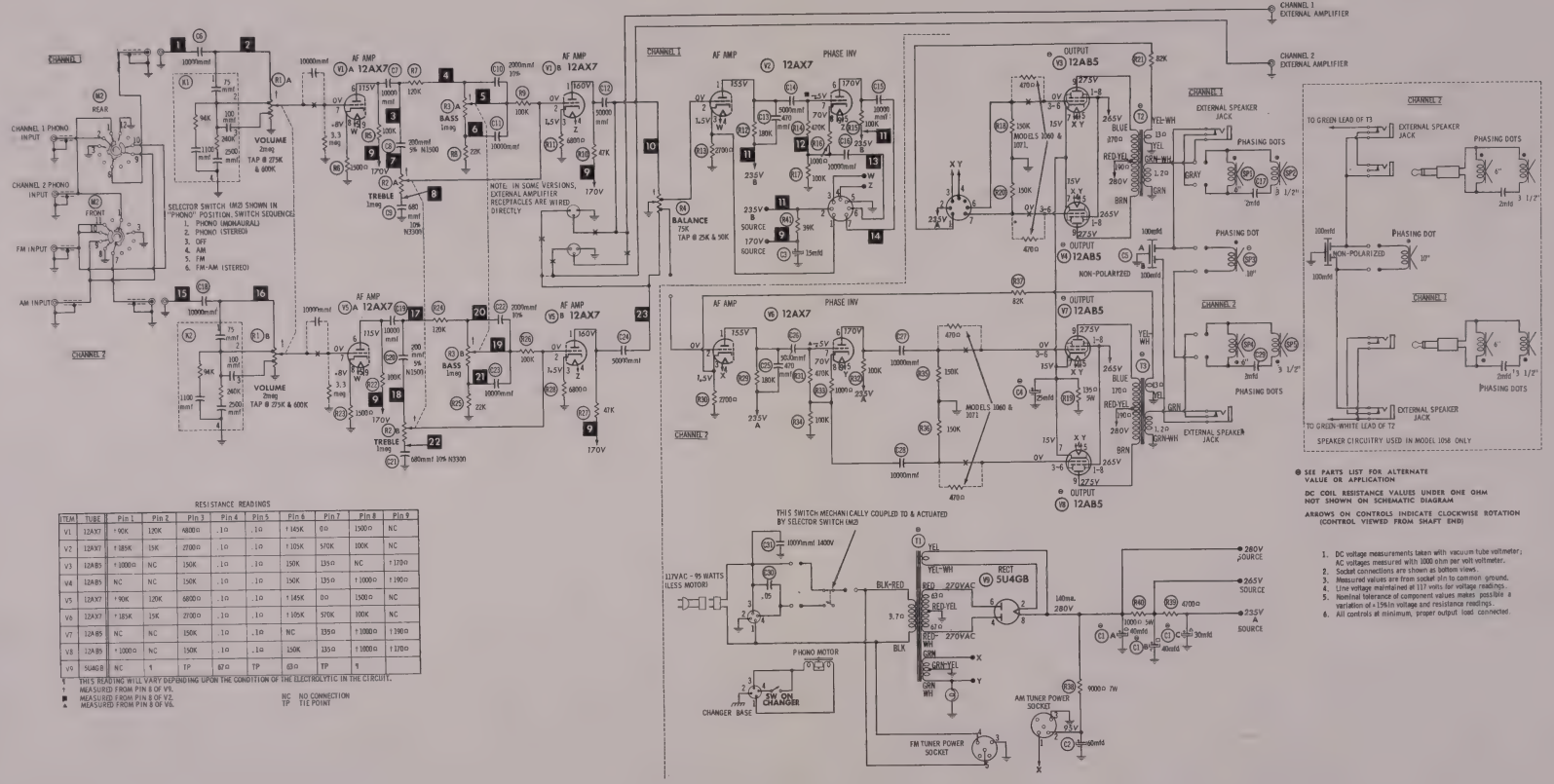
PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



CHANNEL 1 AMP — TOP VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	↑90K	120K	4800Ω	.1Ω	.1Ω	↑145K	0Ω	1500Ω	NC
V2	12AX7	↑185K	15K	2700Ω	.1Ω	.1Ω	↑105K	570K	100K	NC
V3	12AB5	↑1000Ω	NC	150K	.1Ω	.1Ω	150K	135Ω	NC	↑170Ω
V4	12AB5	NC	NC	150K	.1Ω	.1Ω	150K	135Ω	↑1000Ω	↑190Ω
V5	12AX7	↑90K	120K	4800Ω	.1Ω	.1Ω	↑145K	0Ω	1500Ω	NC
V6	12AX7	↑185K	15K	2700Ω	.1Ω	.1Ω	↑105K	570K	100K	NC
V7	12AB5	NC	NC	150K	.1Ω	.1Ω	NC	135Ω	↑1000Ω	↑190Ω
V8	12AB5	↑1000Ω	NC	150K	.1Ω	.1Ω	150K	135Ω	↑1000Ω	↑170Ω
V9	5U4GB	NC	¶	TP	67Ω	TP	63Ω	TP	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
↑ MEASURED FROM PIN 8 OF V8.
■ MEASURED FROM PIN 8 OF V2.
▲ MEASURED FROM PIN 8 OF V6.

NC NO CONNECTION
TP TIE POINT

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE
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WEBCOR MODELS 1058-1, 1060-1, 1068-1, -1A, 1071-1

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V1	Channel 1 AF Amp.	12AX7
V2	Channel 1 AF Amp. - Phase Inverter	12AX7
V3	Channel 1 Output	12AB5 (6BQ5) *
V4	Channel 1 Output	12AB5 (6BQ5) *
V5	Channel 2 AF Amp.	12AX7
V6	Channel 2 AF Amp. - Phase Inverter	12AX7
V7	Channel 2 Output	12AB5 (6BQ5) *
V8	Channel 2 Output	12AB5 (6BQ5) *
V9	Rectifier	5U4GB

GENERAL ELECTRIC • RAYTHEON • SYLVANIA •

* Used in Models 1060-1, 1071-1.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA WEBCOR PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	450	30P396①	AFH4-18-40	D0176	FP447.5	TMQ-4652	TVL-4774	
B	■40	450							
C	▲30	450							
D	30	450	②						
C2	60	400	30P378	PRS1770	BR6045	TC795	TD-80-450	TVA-1714	
C3	15	300	30P281	PRS1640	BR1635	TC64	TD-16-350	TVA-1607	
C4	25	25	③	PRS1260	BBR25-25	TC26	TD-25-25	TVA-1205	
C5A	100	25NP	30P390	PRS7340	BR10015	TCN425		TVANS-1207.1*	
B	100	25NP		PRS7340	BR10015	TCN425		TVANS-1207.1*	

① Some versions may use 35-35-15-25mfd ⓐ 375-375-25V in this application.
② CID is not used.
③ C4 is part of C1 in some versions.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	200 N1500 5%	#30P286				*		
C9	680 N3300 10%	#30P323				*		
C10	2000 10%		DI-2000			CCD-202	GP220	10TS-D20
C11	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C12	50000		BPD-05	DD-503			GP150	5HK-S50
C13	470		DI-470	DD-471	L10T47	CCD-471	B-347	10TS-T47
C14	5000		DI-5000	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C15	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	2.0 25V	#30P317						
C18	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	200 N1500 5%	#30P286				*		
C21	680 N3300 10%	#30P323				*		
C22	2000 10%		DI-2000			CCD-202	GP220	10TS-D20

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C23	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	50000		BPD-05	DD-503			GP150	5HK-S50
C25	470		DI-470	DD-470	L10T47	CCD-471	B-347	10TS-T47
C26	5000		DI-5000	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C27	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C29	2.0 25V	#30P317						
C30	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C31	10000 1400V		DAC-27	DD16-103	HVE16S1		UAC-110	20HKB-S1

* Not normally in distributor's stock. Available thru distributor on order to manufacturer
\# Webcor Part Number.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA WEBCOR PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg *	1/2	31P159					Volume, Channel 2
B	2meg *	1/2						Volume, Channel 1
R2A	1meg	1/2	31P160					Treble, Channel 2
B	1meg	1/2						Treble, Channel 1
R3A	1meg	1/2	31P160					Bass, Channel 2
B	1meg	1/2						Bass, Channel 1
R4	75K †	1/2	31P161					Balance

* Taps ⓐ 275K & 600K.
† Taps ⓐ 25K & 50K.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R5	100K			
R6	1500Ω			
R7	120K			
R8	22K			
R9	100K			
R10	47K			
R11	6800Ω			
R12	180K			
R13	2700Ω			
R14	470K			
R15	100K			
R16	1000Ω			
R17	100K			
R18	150K			
R19	135Ω 5W	PW5-135Ω	5W-SQ-135	
R20	150K			
R21	82K			
R22	100K			
R23	1500Ω			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R24	120K			
R25	22K			
R26	100K			
R27	47K			
R28	6800Ω			
R29	180K			
R30	2700Ω			
R31	470K			
R32	100K			
R33	1000Ω			
R34	100K			
R35	150K			
R36	150K			
R37	82K			
R38	9000Ω 7W	PW10-9000Ω	10W-SQ-9000	
R39	4700Ω			
R40	1000Ω 5W	PW5-1000Ω	5W-SQ-1000	
R41	39K			(33K) *

* Alternate Value.

PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	WEBCOR PART No.	REPLACEMENT DATA
K1	Tone Compensation	75mmf, 100mmf, 2500mmf, 1100mmf, 94K, 240K	62P017	Centralab PC-404
K2	Tone Compensation	75mmf, 100mmf, 2500mmf, 1100mmf, 94K, 240K	62P017	Centralab PC-404

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA: WEBCOR PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
	PRI.	SEC. 1	SEC. 2						
T1	117V @ .86A	540VCT @ .140A	5V @ 3A	68P082 ①					① Part #68P083 used in Models 1060-1, 1071-1.
	SEC. 3	SEC. 4	SEC. 5						
	12.6VCT @ 2A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA: WEBCOR PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
	PRI.	SEC. 1						
T2	5200ΩCT	6-8Ω	67P083-1 ①					① Alternate Part #67P083. Part #67P084 used in Models 1060-1, 1071-1 .
		SEC. 2						
		20Ω						
	PRI.	SEC. 1						
T3	5200ΩCT	6-8Ω	67P083-1 ①					
		SEC. 2						
		20Ω						

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: WEBCOR PART No.	QUAM PART No.	NOTES
SP1	6"	PM	6-8Ω	76P100-A	6A15RZ8	
SP2	3½"	PM	14-16Ω	76P081-2	3A15TZ15.5	
SP3	10"	PM	14-16Ω	76P099-2 *	10A6AZ16	* Models 1068-1, 1068-1A
SP4	6"	PM	6-8Ω	76P100-A	6A15RZ8	
SP5	3½"	PM	14-16Ω	76P081-2	3A15TZ15.5	
	12"	PM	14-16Ω	76P014 †		† Replaces SP3 in Model 1058
	15"	PM	14-16Ω	76P101 ♦		♦ Replaces SP3 in Model 1060-1
	15"	PM	14-16Ω	76P085 ‡	15A1Z16	‡ Replaces SP3 in Models 1071-1A,

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA: WEBCOR PART No. CARTRIDGE	WEBCOR PART No. NEEDLE*	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE*	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE*	SONOTONE PART No. CARTRIDGE	SONOTONE PART No. NEEDLE*	NOTES
M1	21P700-2	21S621-S * or 21S621-SD*	13TB	Not Req.	26S	S1-1 * & S3-3 *	8TA4-S	N-8TA-S * or N-8TA-SD *	

MISCELLANEOUS

ITEM No.	PART NAME	WEBCOR PART No.	NOTES
M2	Switch	11X2306	Selector (Models 1058-1, 1068-1, -1A, 1060-1, 1071-1)

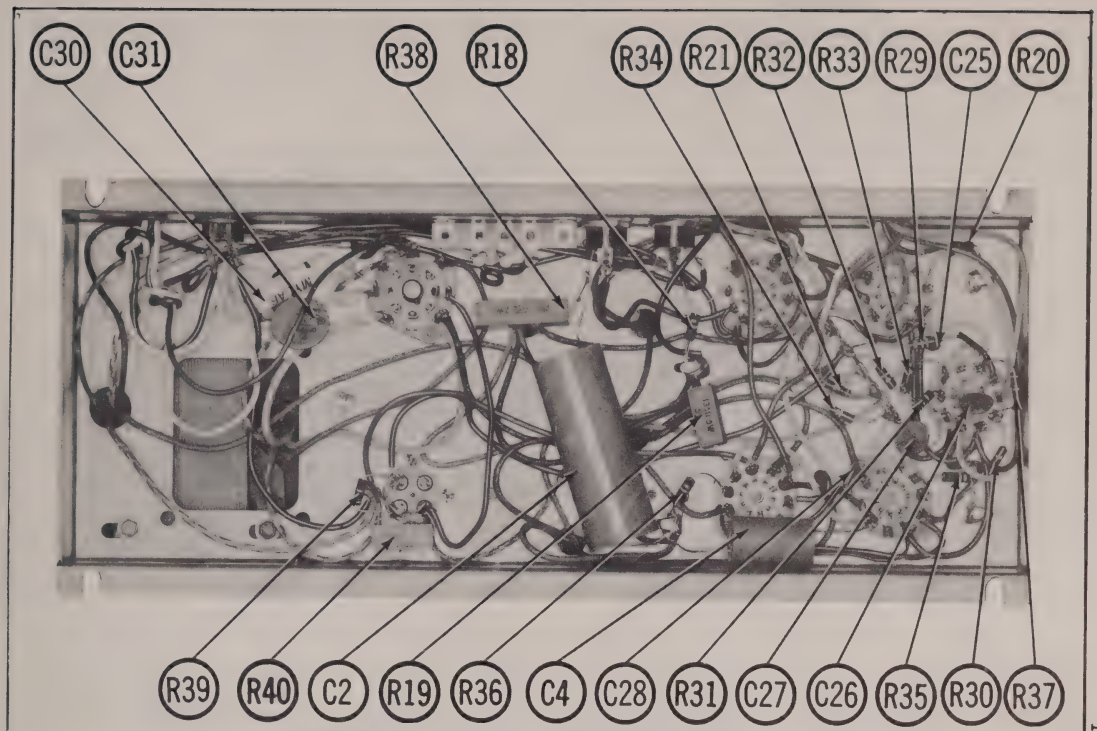
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

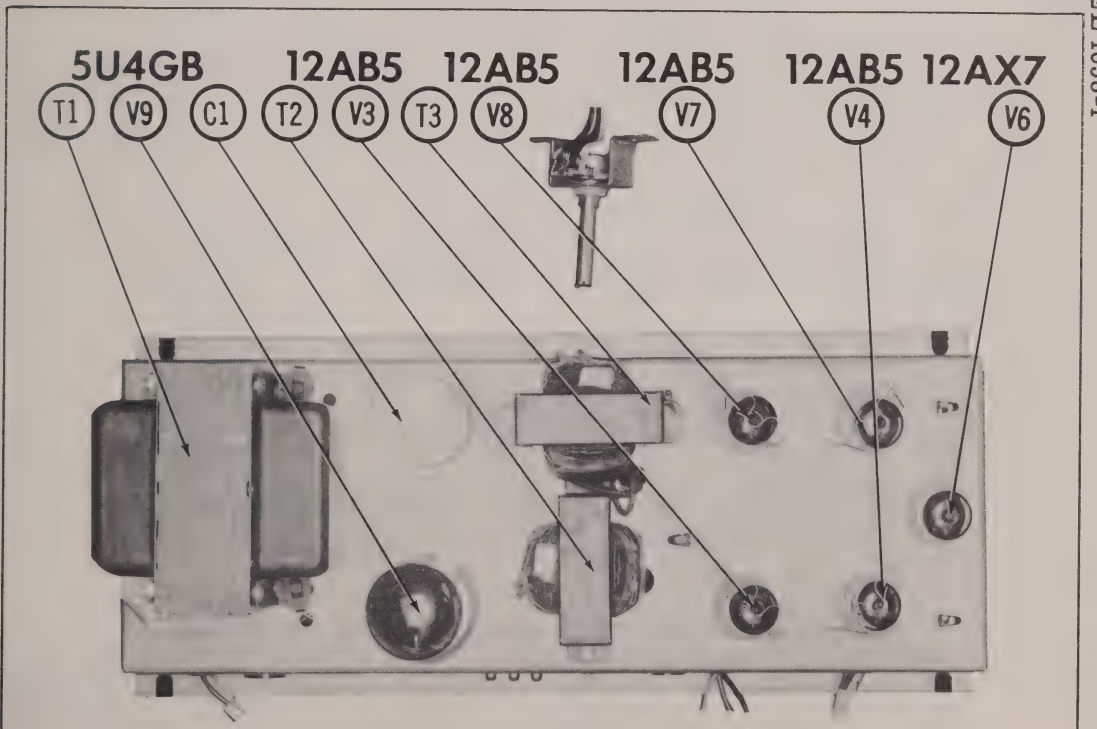
NAME	PART NO.	DESCRIPTION
Knob	39P227-3	Volume, Bass, Treble, Models 1058 Series, 1068 Series, 1060 Series
Knob	39P227-6	Volume, Bass, Treble, Model 1071 Series
Knob	39P232	Balance, Models 1058 Series, 1060 Series, 1068 Series, 1071 Series
Knob	39P227-5	Function Selector, Models 1058 Series, 1068 Series, 1060 Series
Knob	39P227-7	Function Selector, Model 1071 Series
Knob	11X2300	Balance, With Extrusion Assembly, Models 1060 Series, 1071 Series
Cabinet	92X111-1	Model MC1096-1A
Cabinet	92X111-2	Model EC1096-1A
Cabinet	92X111-3	Model PC1097-1A
Cabinet	92X111-4	Model WC1097-1A
Cabinet	92X117-1	Mahogany, Model MC1068-1
Cabinet	92X117-2	Blonde, Model BC1068-1
Cabinet	92X117-3	Walnut, Model WC1068-1
Cabinet	92X118-1	Mahogany, Model MC1058-1
Cabinet	92X118-2	Blonde, Model BC1058-1
Cabinet	92X118-3	Walnut, Model WC-1058-1
Cabinet	92X119-1	Mahogany, Model MC1060-1
Cabinet	92X119-2	Blonde, Model BC1060-1
Cabinet	92X119-3	Walnut, Model WC1060-1
Cabinet	92X120-1	Mahogany, Model MC1071-1
Cabinet	92X120-2	Ebony, Model EC1071-1
Cabinet	92X120-3	Walnut, Model WC1071-1
Cabinet	80X251-1	Speaker, Model MC1058-1
Cabinet	80X251-2	Speaker, Model BC1058-1
Cabinet	80X251-3	Speaker, Model WC1058-1
Leg	110P174-1	Cabinet, Mahogany, Models MC1058-1, MC1068-1, MC1060-1
Leg	110P174-2	Cabinet, Blonde, Models BC1058-1, BC1068-1, BC1060-1
Leg	110P174-3	Cabinet, Walnut, Models WC1058-1, WC1068-1, WC1060-1

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)



CHANNEL 2 AMP – BOTTOM VIEW



CHANNEL 2 AMP – TOP VIEW

PHOTOFACT® Folder

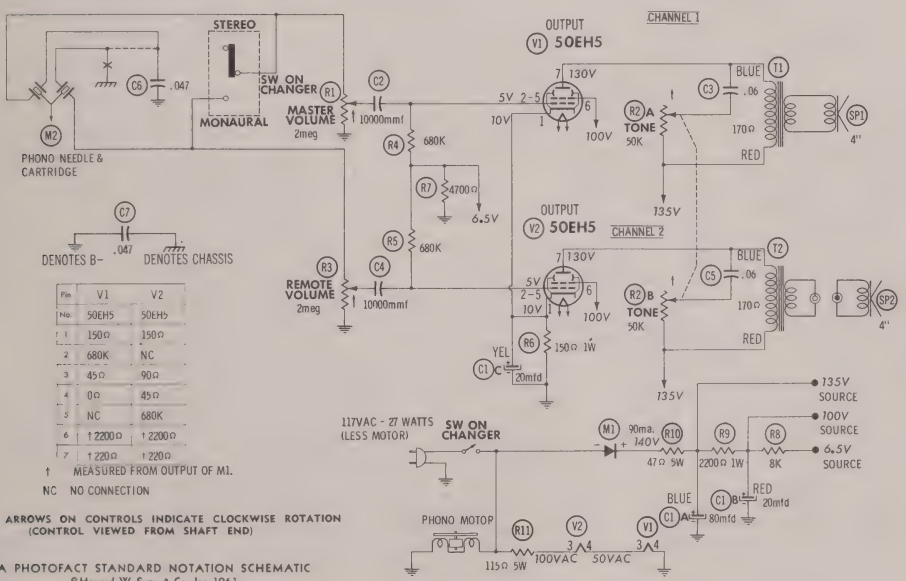
ZENITH
MODEL DPS-45B

ZENITH
MODEL DPS-45B

TRADE NAME	Zenith Model DPS-45B
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois
TYPE SET	AC Operated 2 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles RATING 27 Watts, .28 Amp. @117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER PART #169-121 – SEE SIMILAR V-M 1200 – PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-12

ZENITH
MODEL DPS-45B



Pin No.	V1 50EH5	V2 50EH5
1	150Ω	150Ω
2	680K	NC
3	45Ω	90Ω
4	0Ω	45Ω
5	NC	680K
6	†2200Ω	†2200Ω
7	†220Ω	†220Ω

† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KT237

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PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Channel 1 Output	50EH5	V2	Channel 2 Output	50EH5

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	80	150	WC12145	PRS4650	BBRT8415C	TCT3117	TDLT-7	TVA-3437.1	
B	20	150							
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C3	.06 200V		P288N-06		CUB6S6	6DP-3-603	GEM-416	6TM-S60
C4	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C5	.06 200V		P288N-06		CUB6S6	6DP-3-603	GEM-416	6TM-S60
C6	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C7	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	2meg	½	WC12400	B-76				Master Volume (Channel 1)
B	Bushing			AK-31				
R2A	50K	½	WC13650	B-32	AD47-50K-8			Tone, Channel 2
B	50K			SR-32	Not Req.			Tone, Channel 1
C	Shaft			Not Req.	KSS-3			
R3A	2meg	½	WC12400	B-76				Remote Volume (Channel 2)
B	Bushing			AK-31				

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R4	680K				R8	68K			
R5	680K				R9	2200Ω 1W			
R6	150Ω 1W				R10	47Ω 5W	PW5-47Ω	5W-SQ-47Ω	
R7	4700Ω				R11	115Ω 5W	PW5-115Ω	5W-SQ-115Ω	

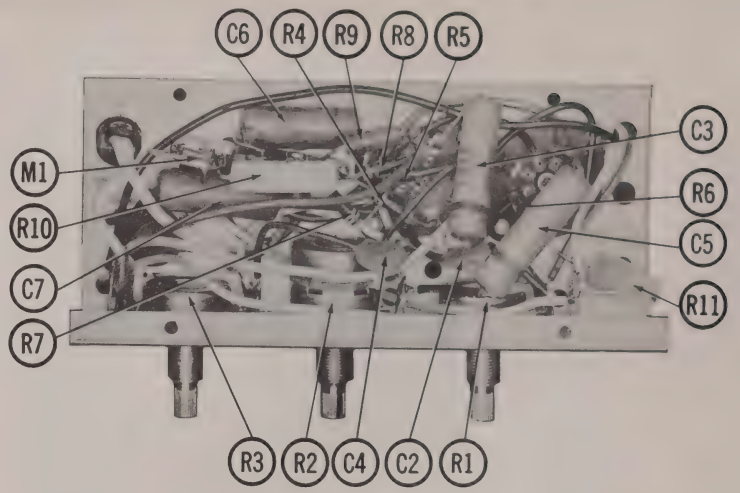
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	ZENITH PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3400Ω	3-4Ω	WC13706	A-3025	A-3332	24S48	S-12X	
T2	3400Ω	3-4Ω	WC13706	A-3025	A-3332	24S48	S-12X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	WC11792	4A07	
SP2	4"	PM	3-4Ω	WC11792	4A07	

CHASSIS—BOTTOM VIEW



POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	ZENITH PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.090A	WC14027 *	1N1763 *	2F4 *	SR200 *	* Silicon Type

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA									NOTES
	ZENITH PART No.			ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*		CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M2	142-107B †	56-421B * (LP)		76-TS-TB	N8-7 *	96T	Not Req.	12TH-S	Not Req.	† Includes needles.
		56-422B * (STD)			N8-3 *					

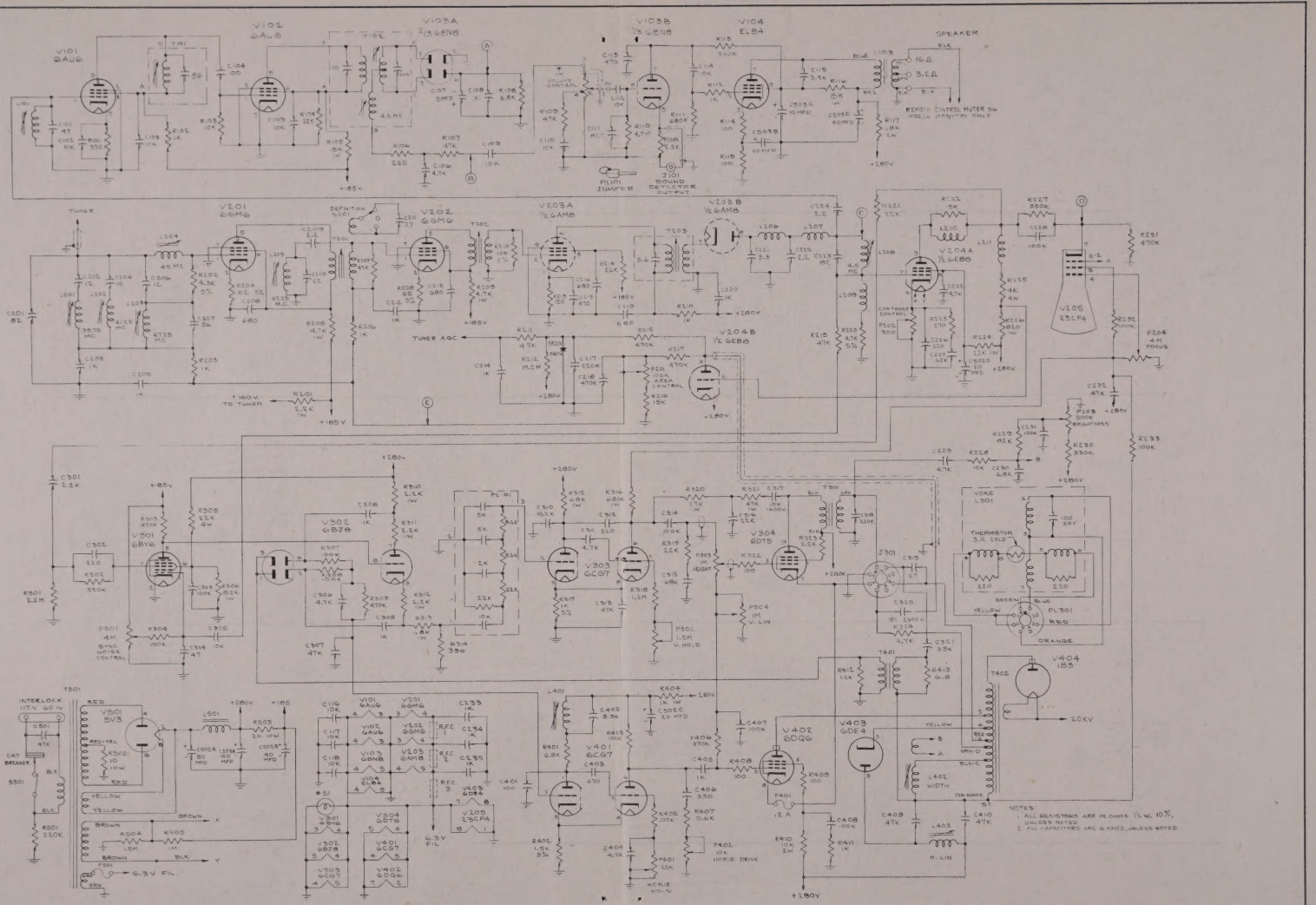
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	WC12126-8E	Volume, Tone
Cabinet	W C14105	Master And Remote With Hardware, Less Back, Vent Panel and Amplifier
Handle	W C13448-8B	Assembly With Two Plates Panel.

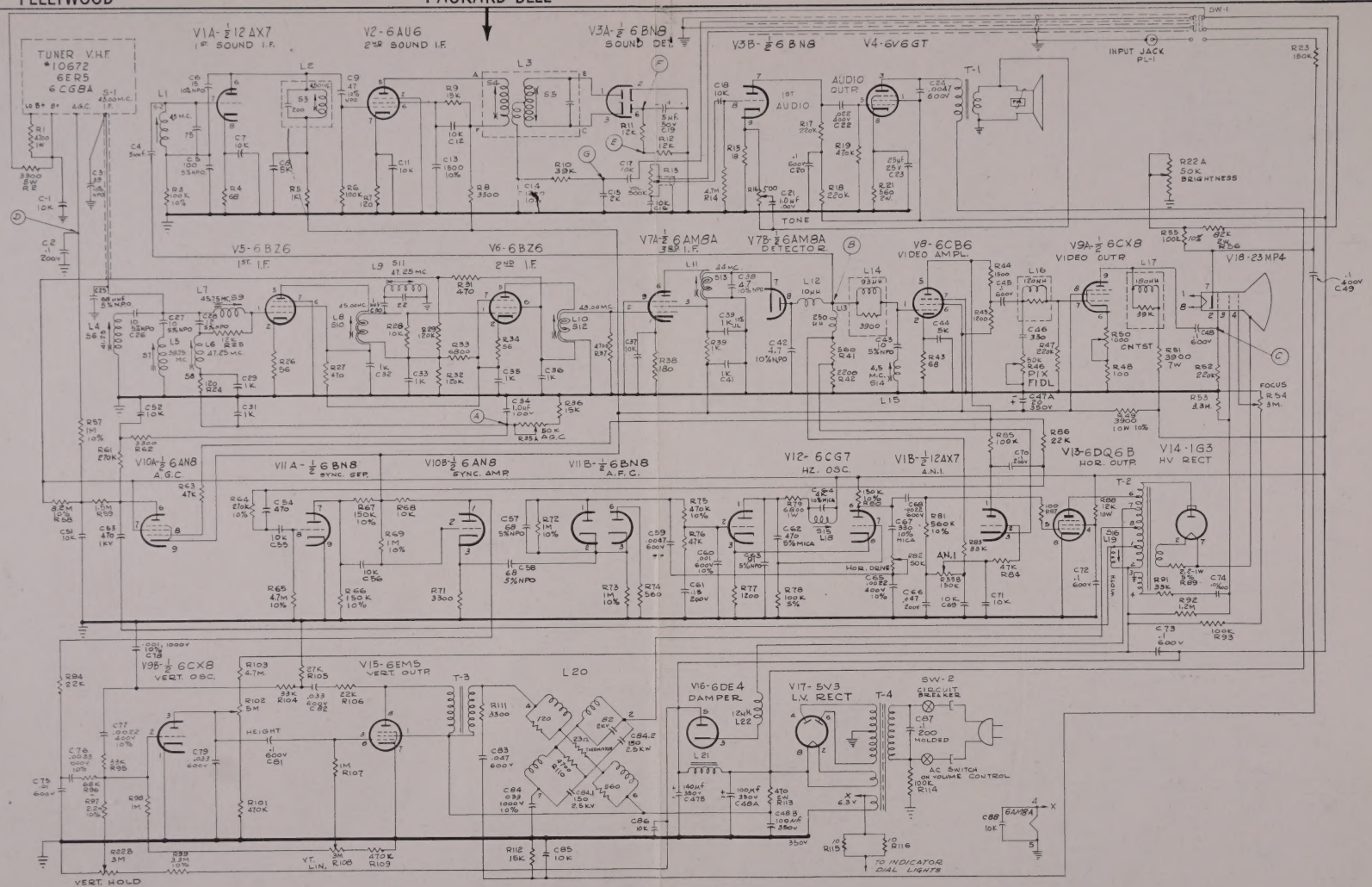
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)



FLEETWOOD MODELS 1001, 1011 (CH. 1000, 1010)

Schematic Diagram Courtesy of Conrac, Inc.



PACKARD BELL MODELS 23DC3, 23DD3 (CH. 98D10)

Schematic Diagram Courtesy of Packard Bell Electronics Corporation

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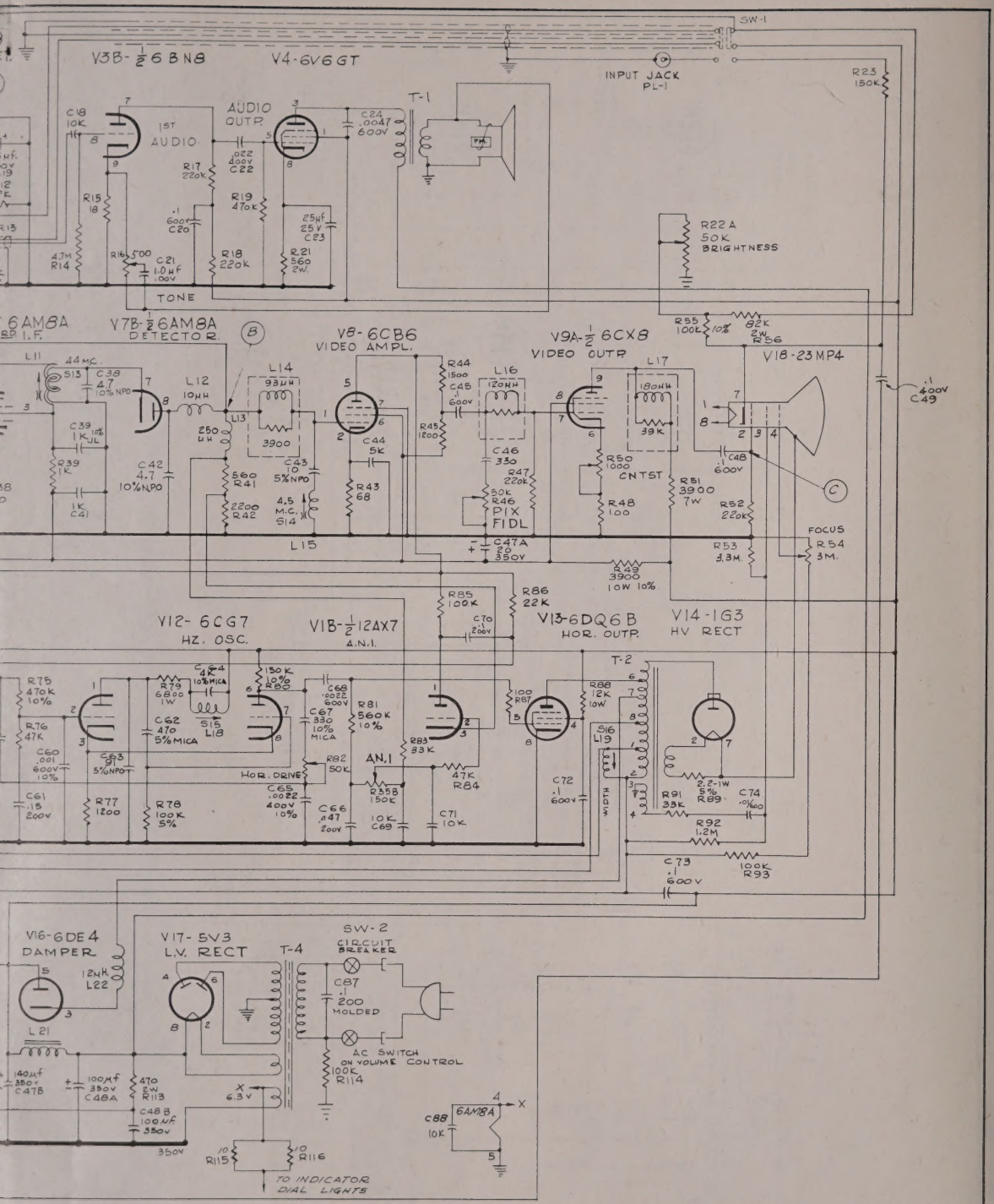

Schematic Diagram Courtesy of Packard Bell Electronics Corporation